United States Department of the Interior
Bureau of Land Management
Winnemucca District

January 2004

Winnemucca Field Office
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445

Environmental Assessment

NV-020-04-02

Nevada Cement Company
Echo Canyon Exploration Project

United States Department of the Interior
Bureau of Land Management
Winnemucca Field Office
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445

ENVIRONMENTAL ASSESSMENT

EA # NV-020-04-02

Submitted for:

Nevada Cement Company
Echo Canyon Exploration Project

January 2004

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Winnemucca Field Office
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445
http://www.nv.blm.gov

TAKE PRIDE IN AMERICA

In Reply Refer To:
3809
(NV-020.06)

JAN 21 2004

Dear Reader:

The Bureau of Land Management (BLM) is enclosing for your review and comment, the Echo Canyon Environmental Assessment (EA). The proposed Project Area is located approximately 25 miles northeast of Lovelock in Pershing County, Nevada. The Proposed Action is to conduct exploration drilling activities for cement-grade limestone in Sections 14 and 23 of Township 30 North, Range 33 East and install two groundwater monitoring wells on Section 8 of Township 30 North, Range 33 East. Surface disturbance is proposed to be approximately 14 acres.

The review and comment period for this EA is thirty (30) days. Comments will be accepted until the close of business on February 20, 2004.

After the public review has ended, comments will be analyzed and taken into consideration in the decision making process.

Please direct comments or questions about this EA to: Mr. Jeff Johnson, Planning and Environmental Coordinator at the above address.

Sincerely,

Acting Assistant Field Manager
Non-renewable Resources

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1.0 INTRODUCTION

1.1 Background

Nevada Cement Company (NCC) proposes to conduct mineral exploration activities on unpatented federal lode mining claims located on public lands administered by the Bureau of Land Management's Winnemucca Field Office (BLM), and private lands controlled by NCC. The purpose of the exploration program is to evaluate the limestone resource in the project area to determine if it is suitable for the manufacturing of Portland cement. The exploration project area is located in Pershing County, Nevada approximately 25 miles northeast of the City of Lovelock, and 50 miles southwest of the City of Winnemucca. Figure 1 illustrates the general location of the project area. Figure 2 illustrates the land ownership of the project area, including the location of the lode claim blocks and the private property that will be explored by the drilling program. Figure 2 also illustrates the location of the federal mill site claims controlled by NCC.

NCC submitted an Exploration Plan of Operations (POO), which included a proposed drilling program, to the BLM in accordance with the Surface Management Regulations contained in 43 CFR 3809 (as amended). The BLM is required to comply with the National Environmental Policy Act of 1969 (NEPA) to analyze the impacts that the Proposed Action and possible alternatives would have on the human environment. This Environmental Assessment (EA) follows the Council of Environmental Quality (CEQ) regulations implementing the provisions of NEPA (40 CFR 1500-1508), and the BLM's NEPA Handbook H-1790-1 (BLM, 1988).

The plan proposes to drill two water-monitoring wells on mill site claims in Section 8, Township 30 North, Range 33 East, MDB&M. These wells would be used to determine if sufficient water is available to support production of a Portland cement plant at the site. NCC plans to monitor the groundwater for a period of a minimum of 3 years. The location of access roads and monitoring well drill sites are indicated on Figure 3.

The exploration drilling on the federal lode mining claims would take place in Section 14, Township 30 North, Range 33 East, Mount Diablo Baseline and Meridian (MDB&M). Exploration on the private land would also occur in Section 23, Township 30 North, Range 33 East, MDB&M. Figure 4 illustrates the location of the proposed drill sites and access roads for the drilling on the lode mining claims and the private land located in Sections 14 and 23, Township 30 North, Range 33 East, MDB&M, respectively.

1.2 Purpose and Need

The purpose of the Proposed Action is to evaluate the suitability of the limestone resource for the manufacture of Portland cement and determine if available water is sufficient for the production at the proposed site. NCC's existing limestone resource near Fernley, Nevada located approximately 80 miles to the south of the proposed project area, is being exhausted. Therefore, NCC needs another limestone reserve to stay in the cement business in their current market.

Approximately 80% of the raw material that goes into cement manufacture consists of limestone. The identification of the Echo Canyon limestone came after a long and exhaustive search for potential limestone resources throughout northern Nevada, and northern and central California. This deposit was recognized as a high potential site because it has considerable potential reserves, excellent adjacent transportation and minimal to no overburden on the deposit. NCC's major reason in choosing this deposit over others in Northern Nevada was the location in their current market area. NCC sells a considerable

amount of cement in both Nevada and California and this was the closest, potentially suitable deposit with excellent transportation access.

1.3 Issues and Concerns

The POO was prepared in consultation with the BLM. On October 2, 2003, BLM held a public information meting in Lovelock, NV. Issues and concerns were identified by BLM specialists on August 5, 2003. The following issues and concerns were identified by BLM specialists and through public input.

- Visual impacts, including those associated with ground disturbance
- Impacts to the historical setting of the emigrant trail
- Visual impacts associated with ground disturbance
- Potential impacts to Cultural Resource (including rock shelters and horse corrals)
- Impacts to undisturbed lands
- Impacts to adjacent land owners (Humboldt River Ranch development)
- Soil erosion
- Impacts to sage-grouse
- Socio-economic impact
- Native American religious concerns
- Vegetation
- Paleontologic resources
- Potential impact to the Rye Patch Reservoir
- Potential impacts to existing roads and maintenance responsibilities
- Impacts to water rights and the groundwater table
- Noise
- Air quality (dust)

1.4 Land Use Plan Conformance Statement

The Proposed Action described in Section 2.0 is in conformance with the BLM's Sonoma-Gerlach Management Framework Plan (BLM, 1982).

1.5 Other Applicable Statues, Regulations and Policies

The BLM has the responsibility and authority to manage mineral resources on public lands within its charge in accordance with various statutes and regulations. Mining and exploration projects on BLM administered public lands are conducted in accordance with the General Mining Law of 1872; the requirements of 43 CFR 3809, Surface Management; the Mining and Mineral Policy Act of 1970; and the Federal Land Policy and Management Act of 1976.

Exploration operations on federal and private land in the State of Nevada are also conducted in accordance with Nevada Revised Statute (NRS) 519A, Reclamation of Land Subject to Mining Operations or Exploration Projects; and Nevada Administrative Code (NAC 519A), Regulation of Mining Operations and Exploration Projects. NCC would post a reclamation bond for the proposed exploration project in accordance with 43 CFR 3809, NRS 519A, and NAC 519A. In addition, NCC would obtain all other applicable permits and approvals to conduct operations at the Echo Canyon Exploration Project Site as required by federal, state, and local laws and regulations.

2.0 PROPOSED ACTION AND ALTERNATIVE

Chapter 2.0 describes the Proposed Action and No Action Alternative. The Proposed Action is described in detail in the Exploration Plan of Operations.

2.1 Proposed Action

2.1.1 Location

The proposed exploration project would occur on the west flank of the Humboldt Range in Pershing County. Exploration drilling on the lode mining claims would take place in Section 14, Township 30 North, Range 33 East, Mount Diablo Baseline and Meridian (MDB&M) and on adjacent NCC controlled private land will take place in Section 23, Township 30 North, Range 33 East, MDB&M. Water monitor well drilling on the mill site claims would take place in Section 8, Township 30 North, Range 33 East, MDB&M. Figure 2 illustrates the land ownership of the project area, including the location of the lode and mill site claim blocks, and the private property that would be explored by the drilling program. Figure 3 illustrates the location of the proposed drill sites and access road for the water monitoring wells on the mill site claims in Section 8, Township 30 North, Range 33 East, MDB&M. Figure 4 illustrates the location of the proposed drill sites and access roads for the drilling on the lode mining claims and the private land located in Sections 14 and 23, Township 30 North, Range 33 East, MDB&M, respectively.

2.1.2 General Project Overview

The Proposed Action would take place on an exposed ridge approximately 2.5 miles east of the Rye Patch exit on Interstate Highway 80. It would include drilling 51 exploration holes; constructing roads to access drilling locations; and building of drill pads with sumps to contain drilling fluids or cuttings on the sites. The disturbance would encompass approximately 13.4 acres, including 5.1 miles of road and drill pads. NCC would implement concurrent reclamation of completed drill sites and roads as appropriate during exploration activities. The drilling program would last approximately 3 months, after which the remaining roads and drill pads would be reclaimed.

This action would include drilling and developing two water monitor wells. The monitor wells, located 1.5 miles northwest of the Rye Patch exit, would allow monitoring of the water table for a three-year period. About 0.59 additional acres of additional disturbance would be associated with these wells. The wells and any land disturbed would be reclaimed after the monitoring period, should NCC determine future mining is not feasible.

The proposed roads have been subdivided, as illustrated on Figure 4 and by Table 1, into six categories. The first five categories are shown as different colored roads in the area of steeper terrain where the majority of the drilling would take place. The sixth category is the disturbance in connection with a road and two drill pads for the water monitor wells on the relatively flat mill site claims as shown on Figure 3.

Table 1 summarizes the proposed exploration project surface disturbance by the six categories, according to BLM and private land. Further explanation of disturbances is described in sections 2.1.3 and 2.1.4.

TABLE 1
ESTIMATE OF DISTURBANCE

Area of Disturbance	Public Lands		Private Property		**Totals**	
	Length (ft)	Area (acres)	Length (ft)	Area (acres)	Length (ft)	Area (acres)
1) Red Road - base of hill in alluvium, Sec 14 & 23						
Length of road	3,630		2,600		6,230	
20% 16' wide		0.27		0.19		0.46
80% 12' wide		0.80		0.57		1.37
Drill Pads (5)		0.03				0.03
2) Green Road - steep hillside, Sec 14						
Length of road	6,490				6,490	
4% 12' wide		0.07				0.07
4% 16' wide		0.10				0.10
92% 24' wide		3.29				3.29
Drill Pads (18)		0.10				0.10
3) Black Road - steep hillside, Sec 14						
Length of road	6,390				6,390	
3% 12' wide		0.05				0.05
97% 24' wide		3.42				3.42
Drill Pads (15)		0.08				0.08
4) Blue Road - steep hillside, Sec 14						
Length of road	4,220				4,220	
2% 12' wide		0.02				0.02
98% 24' wide		2.28				2.28
Drill Pads (7)		0.04				0.04
5) Orange Road - steep hillside, Sec 14 & 23						
Length of road	1,000		2,750		3,750	
100% 24' wide		0.55		1.52		2.07
Drill Pads (6)		0.01		0.02		0.03
Subtotals for Lode Claims Area (ft)	**21,730**	**11.11**	**5,350**	**2.30**	**27,080**	**13.41**
6) Mill Site Claims, section 8 (Figure 3)						
Length of Road	2100				2100	
100% 12 feet wide		0.58				0.58
Drill Pads (2)		0.01				0.01
Total Length of Roads in Feet	**23,830**		**5,350**		**29,180**	
Total Length of Roads in Miles	**4.51**		**1.01**		**5.53**	
Total Area to be Disturbed		**11.70**		**2.30**		**14.00**

2.1.3 Proposed Drill Sites

Proposed drill sites, each approximately 14 feet by 35 feet, would be constructed as part of the access roadways to accommodate drilling test holes with all-terrain drill rigs. Essentially the 53 drill sites would be widened sections of roadway that would not require leveling. The average depth of test drilling would be 350 feet.

All of the drill cuttings and fluids would be contained in sumps constructed as part of each drill sites. The sumps would be constructed on cut slopes in order to prevent drilling fluids or cuttings from accidentally escaping the confines of the sump during reclamation.

Plans include drilling the higher elevation holes first and moving downhill to allow concurrent reclamation of completed holes. The drilling would be planned so that drill rigs would not have to pass one another at a drill pad.

Surface disturbance would be minimized as much as possible during drill pad construction. This would be accomplished by limiting surface disturbance to only those areas where drill rig access cannot be accomplished otherwise. Surface disturbance would include removal of vegetation. On flatter areas, where feasible, vegetation would remain in place and only be flattened to provide cross country access. Removal of roots would be minimized as much as possible in order to enhance vegetation "bounce back".

Revegetation would be undertaken using a BLM recommended seed mix and application rate as contained in Appendix A. All reseeding would be done by hand broadcast methods. No revegetation would be planned on previously exposed bedrock.

The two drill holes on the mill site claims in Section 8 would remain open in order to obtain necessary monitoring data. These two holes would have casing near surface to protect groundwater from being contaminated by surface runoff that might enter the hole. The casing and any perforated pipe which may be installed to allow for piezometer readings would extend no higher than approximately 12 inches above the surface to minimize visual impact. The casing would be cemented in place and a locking cap would be installed to prevent tampering.

2.1.4 Proposed Access Roads

The proposed 14 acres of disturbance includes approximately 11.7 acres of associated disturbance would occur on public land. Surface disturbance would be minimized as much as possible during road and drill site construction by limiting disturbance to only those areas where drill rig access cannot be accomplished otherwise.

When necessary temporary access roads would be built to accommodate all-terrain drill rigs and support vehicles, including four-wheel drive light trucks, for the duration of the project. The proposed roads were located to generally avoid bedrock during construction but blasting would be undertaken if necessary. BLM would be consulted and proper permits would be acquired before any blasting activities.

Roads would be constructed to inhibit soil erosion by the implementing Best Management Practices (BMP) including the installation of water bars and drainage pathways where needed. Care would be taken to prevent sediment from entering drainages by using appropriate erosion and sediment controls.

Culverts are not planned due to the short life of the exploration project. Should drilling activities extend beyond mid-June, water bars would be installed prior to potential summer storm events. In the event

weather conditions cause or contribute to washouts additional maintenance activities would be undertaken.

Growth medium on the project site is limited. During road construction all suitable growth medium would be salvaged and stockpiled in berms along the uphill side of the roads as appropriate for use in later road reclamation.

On flat to gently rolling terrain, cross county travel would be used when possible to access drill sites. Where minimal dirt work or removal of vegetation may be required, the driving width would be approximately 10 feet, with the total surface disturbance not exceeding 12 feet in width. Removal of roots would be minimized as much as possible in order to enhance vegetation "bounce back". About 1.53 acres of disturbance on public land would be in this type of terrain.

Roads that would be built on natural slopes of about 3h:1v would disturb approximately 0.37 acres of public land. The roadway width would average 12 feet, with total horizontal surface disturbance averaging 16 feet (top of road cut to bottom of fill).

About 9.54 acres would be disturbed on public land from roads proposed in steeper terrain with average natural slopes of 2h:1v. These roads would require side-hill cuts constructed with a D8R sized bulldozer. The roadway width would average 12 feet, with total horizontal surface disturbance averaging 24 feet. Roads on the steeper slopes would include switchbacks to maintain safe road grades for higher elevation drill pads. Berms may be required in places for safety. A Caterpillar 130G motor grader would be used to top-dress the roads and build safety berms as necessary. The majority of the grades for this section of road are planned at 15 percent. However, occasional grades of 20 percent could be required.

2.1.5 Equipment

The drill rigs proposed for this project include 1 rig capable of collecting rock core and 1 reverse circulation rig. Both rigs would be mounted on all-terrain vehicles that typically travel cross-country with minimal surface disturbance. These rigs do not require level drill sites, as they are self-leveling.

Road building would be accomplished with a Cat 130G motor grader and a Cat D8R bulldozer. Road and drill pad reclamation, as described in section 2.1.10, would be accomplished using a Hitachi EX 200 excavator, water truck and support vehicles.

2.1.6 Work Force

The work force involved in the drilling program would include workers building the roads and pads, drilling, and logging drill hole data. Ten people would be employed for the duration of the project. Nevada Cement personnel would oversee all activities. The personnel working at the site would stay in Lovelock, approximately 25 miles southwest of the site.

2.1.7 Access to Project Area

Access to the drill sites located on the lode claims, the private property and the mill site claims would be provided by existing secondary access roads and the proposed drill roads illustrated on Figures 2, 3 and 4. NCC would maintain access roads. Access from Interstate Highway 80 to that part of the proposed project on the west flank of the Humboldt Range would be through the Humboldt River Ranch Development on both paved and private gravel roads as shown on Figure 5. Private access roads through the Humboldt River Ranch would be re-graded if wash-boarding or rutting of the gravel roads were to

occur. Access to that part of the proposed project where the monitoring wells would be drilled is by public paved highway and dirt road, also shown on Figure 5.

2.1.8 General Schedule of Operations

Operations would commence with BLM concurrence after project approval by the BLM. The monitor well development and exploration operation would be expected to take 3 months. Reclamation would be concurrent with the operation and completed within approximately two weeks of completion of the drilling.

2.1.9 Environmental Monitoring and Protection Measures

2.1.9.1 Infrastructure

Operator vigilance, BMP, and the construction design for drill roads, sumps and pads would be used to minimize surface disturbance and the potential for fuel and oil spills. Any spills would be reported and remediated according to Nevada State and Federal regulations.

2.1.9.2 Surface Water Management

Standard exploration project BMP including the use of drill sumps and water bars will be used to control surface water runoff and reduce the potential for soil erosion at the project site. A Stormwater Management Permit will be obtained from the Nevada Division of Environmental Protection, Bureau of Water Pollution Control. A Stormwater Pollution Prevention Plan for the project will be implemented as part of the permit requirements. Straw bales and/or other sediment structures would be installed to reduce possible sedimentation.

2.1.9.3 Groundwater Management

The exploration drilling program will be conducted in accordance with the State of Nevada well drilling requirements contained in NAC 534.4369, NAC 534.4371 and NAC 534.4373. By following these regulations local groundwater would be protected from potential future migration of surface contaminants. As required by NAC 534.442, NCC will obtain a waiver to use water from another State permitted source for drill water. All explorations drill holes will be abandoned prior to removing drill rigs from each site.

2.1.9.4 Dust Control

Activities for the proposed project will be conducted under an air emission permit issued by the Nevada Division of Environmental Protection (NDEP). Injection of drilling fluid or water would be used to control dust that could result from drilling activities. As necessary, roads would be watered to control dust.

Fugitive dust would be controlled by applying water to roads. Injection of drilling fluid or water would be used to control dust that could result from drilling activities.

2.1.9.5 Weed Management

NCC would develop and implement a weed monitoring and control program that meets BLM requirements. Appendix B lists the noxious weeds species in Nevada. This plan would include the following procedures:

Power washing the undercarriage and wheels of vehicles and equipment traveling into the project area at a commercial facility prior to entering the site.

After washing, vehicles and equipment would not travel through known noxious weed sites during periods when seed or vegetative portions of the weeds are present.

NCC would implement a weed control program to control noxious weeds found during operations and after reclamation.

Straw bales used for erosion control barriers would be certified weed free.

A BLM-approved certified weed-free seed mix would be used for reclamation of the drill roads and sites.

2.1.9.6 Cultural Resources

All known eligible, or potentially eligible cultural resource sites would be avoided during exploration project activities. NCC conducted a cultural resource inventory of the project area in August of 2003 and no cultural sites, eligible or potentially eligible are known to exist there. In the event that cultural resources are discovered during operations, NCC's Project Manager would immediately cease operation at this particular site and notify the BLM. In accordance with 43 CFR 10.4(g), NCC's Project Manager shall notify the BLM by telephone, with written confirmation, immediately upon discovery of human remains, funeral objects, sacred objects, or objects of cultural patrimony as defined in 43 CFR 10.2. Further, in accordance with 43 CFR 10.4 (c) and (d), all activities in the vicinity of such a discovery would cease and the site protected for 30 days or until notification to proceed is issued by the BLM's authorized officer.

2.1.9.7 Wildlife

No restriction of wildlife movements in the project area would occur since the installation of fences or other movement restrictive features would not occur. Should any wildlife mortalities occur, as a consequence of the Proposed Action, the BLM and the Nevada Division of Wildlife would be notified immediately.

Prior to any disturbance during migratory bird nesting season (March – June) a BLM approved biologist would conduct the necessary surveys. Disturbance to any known nest sites would be avoided and drill holes and access roads relocated if necessary.

A sage-grouse lek is known to occur within the lode claim project boundaries and within 0.4 miles of the proposed lode claim mineral exploration activities. The NDOW will provide guidelines for the drilling program to mitigate potential impacts to this species. These guidelines will be coordinated with the BLM and will be stipulated in the Decision Record for the project. A possible positive impact to the sage grouse population is the potential for reclaimed roads and drills pads to become future lek sites.

2.1.9.8 Spill Response and Control

All spills, regardless of size or quantity, would be reported immediately to NCC's Project Manager who would be responsible for spill clean up. Fuels and lubricants are the materials that would be most likely be spilled in the Proposed Action. Excess cement and bentonite that would have spilled around the drill hole would be broken up and dispersed. Unused cement and bentonite would be temporarily stored for future drilling.

Information reported to the Project Manager regarding the spill would include the chemical name of the substance that spilled or leaked; an estimate of the quantity that spilled or leaked; the time and duration of the release; where the release is deposited; why the release occurred; any immediate health and safety, or environmental threats or issues; and the spill response action(s) taken.

Spills that must be reported immediately to state and federal agencies include spills of any petroleum hydrocarbon substance that exceeds 25 gallons on the ground; spills that cannot be totally cleaned up within 24 hours; and spills of any substance that reach a surface water body.

Spill clean up procedures would be conducted by trained personnel who would immediately respond by employing a spill kit to contain the spill. The first step in any emergency situation is to ensure that personal safety is not threatened.

Clean up procedures would then commence and the clean-up crew would survey the situation and assess the safety and environmental threats; never address any emergency situation alone; call for a back-up person; assemble the required personal protective and clean-up equipment including chemical protective gloves, suite, Tyvek boots, and any other gear as necessary; prevent the spill or leak from spreading by using oil absorbent socks, building a dike or trench, or cover with sand or other absorbent material; plug a leak from a drum or container with a compatible material to stop material from leaking; clean up smaller spills with rags, which would then be placed in closed, sealed metal fireproof containers that comply with all applicable Federal and Nevada State Fire Regulations; clean up larger spills/leaks with absorbent socks and/or pillows; place the socks and/or pillows in empty 55-gallon drums compatible with the spilled material; all drums would be properly labeled and would include a lid that would be secured; call a licensed hazardous waste contractor to dispose of the contaminated absorbent materials; call a licensed hazardous waste contractor to clean up/remediate any spills that cannot be cleaned up by NCC project personnel; and assess what actions could have been taken to prevent the spill/leak from occurring and modify work procedures/methods as appropriate.

2.1.10 Reclamation

The POO provides details for reclamation of proposed exploration activities as required by the Surface Management Regulations at 43 CFR 3809. NCC would provide an acceptable reclamation bond.

NCC would implement concurrent reclamation activities when possible. This could include reclamation of drill pads and roads no longer needed for the drilling project. The remainder of the project area would be reclaimed within two weeks of the completion of the drilling program except monitor wells and access to those wells. Reseeding would be undertaken at an appropriate time of the year as recommended by BLM.

All holes drilled for exploration purposes would be plugged in accordance with the requirements of NAC 534.4371. This would include filling all dry holes with cuttings and cementing the upper ten feet. All

exploration drill holes would be plugged as the drill rig leaves the drill site. All equipment, pipe, scrap and other waste material would be removed from the site.

The two monitoring wells located on the mill site claims would be reclaimed in approximately three years if the project does not go forward. Well reclamation would be undertaken in accordance with State of Nevada regulations NAC 534.

Disturbances would be recontoured to blend with the surrounding topography. Slopes would be re-established to near natural slope angles during reclamation by replacing excavated material into the road cut or drill site and rounding off cut and fill slopes. Available growth medium would be replaced.

All drill sumps would be reclaimed during road and pad reclamation. Drilling fluids and cuttings would be allowed to dry, then covered with fill material and growth medium where available.

Where drainages intercept reclaimed roads these areas would be restored and stabilized. If necessary, fiber rolls, silt fences or temporary sediment traps would be strategically located to contain sediment erosion. BMP would be followed.

Heavily compacted roads, if at original slope, would be ripped and scarified to prepare the seedbed and promote revegetation.

Revegetation would be undertaken using the BLM recommended certified weed-free seed mix and application rate as listed in Appendix A. All seeding would be undertaken at the appropriate time of the year per recommendations from the BLM. Reseeding would be done by hand broadcast methods. No revegetation would be planned in areas where bedrock is exposed at the surface.

Monitoring of the reclaimed site would be undertaken to assure that revegetation is satisfactory. Annual inspections by a qualified individual would occur during peak green growing seasons. If revegetation is not successful after the second season, NCC would coordinate alternative revegetation requirements with the BLM.

2.1.10.1 Interim Stabilization

Surface disturbance from the proposed operations would be subject to interim stabilization should areas remain inactive or un-reclaimed for a period of over 1 month.

2.1.10.2 Concurrent Reclamation

NCC will implement concurrent reclamation activities when appropriate. This could include reclamation of drill pads and roads no longer needed for the drilling project. Any concurrent reclamation activities would be coordinated with the BLM. Seeding should be done at the appropriate time October through January.

2.2 Alternatives Considered and Eliminated from Detailed Consideration

No alternatives were considered except the Proposed Action and the No Action Alternative.

2.2.1 No Action Alternative

The No Action Alternative would result in the BLM not allowing the exploration project to go forward. Since there is presently no disturbance on the ground, the No Action Alternative would keep the property in a natural, undisturbed state.

3.0 AFFECTED ENVIRONMENT

This section describes the existing environment of the proposed project area and how the area would be affected by the Proposed Action.

The majority of the proposed drilling program would be located on the steep, mountain front terrain of the west flank of the Humboldt Range, approximately 2.5 miles east of the Rye Patch exit on Interstate Highway 80. Fifty-one drill holes are proposed over approximately one square mile of the upper reaches of a gently sloping alluvial fan to steep mountainous terrain, from elevation 4,800' to 5,700'. The Humboldt Range is a typical north-south trending mountain range of the Basin and Range physiographic province, with wide valleys on either side. At higher elevations vegetation consists of sagebrush and scattered juniper trees.

The intermountain valley to the west of the range contains the Humboldt River and Rye Patch Dam and Reservoir. Two drill holes would be on the mill site claims just to the west of the freeway, on gently rolling to flat ground. The surface soils here are old lake deposits and wind blown sand. A half-mile further west the Humboldt River has cut a deep canyon into the soft lake sediments and this is the location of the Rye Patch Dam, which backs up the Rye Patch Reservoir. Vegetation consists of salt desert scrub (shadscale zone) typical of the saline, lower elevation, sandy, valley floor environment.

The fifteen critical elements of the human environment listed in Table 2 are subject to requirements specified in statute, regulation, policy or executive order and must be considered in the Proposed Action and Alternative's in all EA's. Those marked as not present would not be impacted by, nor cause impacts to the Proposed Action, and are not addressed in this EA as provided in CEQ guidelines 40 CFR 1500.4.

Table 2
Critical Elements of the Human Environment

Critical Element	Present	Affected	Critical Element	Present	Affected
Air Quality	Yes	Yes	Migratory Birds	Yes	Yes
Areas of Critical Environmental Concern	No	No	Native American Religious Concerns	Yes	No
Cultural Resources	Yes	Yes	Special Status Species	Yes	Yes
Environmental Justice	No	No	Water Quality	Yes	Yes
Farmlands	No	No	Wetlands/Riparian	No	No
Floodplains	No	No	Wild & Scenic Rivers	No	No
Hazardous Materials	No	No	Wilderness	No	No
Invasive, Nonnative Species and Noxious Weeds	Yes	Yes			

In addition to the critical elements listed in Table 2, the following other resources are present in the project area and could be impacted by the Proposed Action. The BLM has determined these resources will be analyzed as part of this EA.

- Visual Resources
- Wildlife
- Vegetation
- Soils
- Geology
- Recreation
- Socio-Economic
- Paleontology

3.1 Visual Resources

The Bureau of Land Management initiated the Visual Resource Management (VRM) process to manage the quality of landscapes on public land, as well as minimizing potential impacts to visual resources resulting from development activities. VRM class designations are determined by assessing the scenic value of the landscape, viewer sensitivity to the scenery, and the distance of the viewer to the subject landscape. These management classes identify various permissible levels of landscape alteration, while protecting the overall visual quality of the region. The management classes are divided into four levels (Classes I, II, III, and IV). Class I is the most restrictive and Class IV is the least restrictive.

The Proposed Action is located within an area designated as VRM Class II (BLM, 1981). The objective of VRM Class II is to retain existing landscape character. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color, and texture found in the predominant natural features of the characteristic landscape (BLM, 1986).

The site topography is as depicted on Figures 2, 3, and 4. Visual Contrast Rating Sheets for two Key Observation Points (KOP) have been prepared for the Proposed Action. KOP #1 is located at the truck stop on the east side of the Interstate 80 interchange with Humboldt River Ranches and Rye Patch Dam, near mile marker 129. KOP #2 is located on the emigrant trail and evaluates the two proposed drill holes near the mill site. Both KOP's are evaluated viewed east. Copies of the Visual Contrast Rating Worksheets are attached in Appendix C as well as a map showing the locations of the KOP's.

The proposed exploration roads and drill holes, located on the west facing slope of the Humboldt Range, would be situated in steep, predominantly westward facing slopes near the base of the range. The landscape of this area, as viewed from KOP #1, consists of a gently sloping alluvial fan pediment in the foreground and moderate to steep, undulating to jagged mountains in the background. The landscape of the proposed exploration roads and drill holes consists of moderately diagonal and undulating lines and form. The vegetation of the foreground is grasses mixed with occasional shrubs, ranging from dark green to yellows and tans. The vegetation of the background consists of plants ranging from gray to dark green with a dotted texture. The area of proposed exploration roads and drill sites is currently undisturbed and is visible from most points to the west.

There is a distinct line of color, vegetation, and landform separating the foreground from the background. Disturbance is very evident on the alluvial fan, between the mountain front and the freeway. Here, private property within Humboldt River Ranch has been partially developed with homes and/or trailer

homes. An extensive system of unpaved, graveled roads provides access to most of the lots, and power poles and lines are clearly visible. The developed lots and road system create contrasting vertical and horizontal linear elements that are visible as a result of the lighter and darker colors of power line systems, light to white homes, and the grayish to brown roads. The development is visible from most points west. Figure 2 is a generalized map showing the distribution of the Humboldt River Ranch lots in relation to the Proposed Action.

The Proposed Action in the Humboldt Range would be visible to travelers along Interstate 80 and from the truck stop at the interchange (KOP #1). This Proposed Action would be highly visible to the residents of Humboldt River Ranches.

The Proposed Action on the mill site claims would be located on gently rolling to flat ground as shown on Figure 3. The foreground as viewed east from KOP #2 consists of relatively flat lying ground, thickly vegetated with greasewood, thistle and grasses. Colors range from light to dark gray, with light and dark green shrubs, and tan and yellow grasses. The midground consists of the predominant horizontal linear element of Interstate 80, with less prominent vertical and horizontal linear elements associated with the Humboldt River Ranches. The background consists of the moderate to steep, undulating to jagged Humboldt Range. This area is immediately adjacent to Interstate 80 and is moderately visible from the freeway. It would also be moderately visible from nearby dirt roads, including the emigrant trail. Although the relative flatness of the terrain, combined with the thick vegetation would mitigate the impacts to visual resources as viewed from the emigrant trail.

3.2 Cultural Resources

Nevada Cement retained R. K. Vierra & Associates in August of 2003 to undertake a cultural resource inventory, CR2-2867, on approximately 79 acres of public and private land covering all areas where disturbance is proposed. No cultural resources were found as a result of the inventory. The cultural resource report is on file in the cultural resource files in the Winnemucca BLM Field Office.

The historic California Emigrant Trail skirts the eastern edge of the mill site claims in Section 8, Township 30 North, Range 33 East, MDB&M. A segment of the trail is 0.3 mile west of proposed well 2. The trail was originally established in the late 1840's and was used by thousands of emigrants until the transcontinental railroad was built in the late 1860's. Portions of the trail in the vicinity of the Proposed Action are still intact and some of the country through which the trail runs looks much like it did in the mid 19th century.

The project area is located in the Rye Patch Mining District, which dates back to the 1860's. Although there are historic mines in the vicinity, none are located within the project area. The Standard Mine, approximately 2 miles north of the project area, is a historic mine that may be reopened by Apollo Gold. Apollo Gold is the operator of the Florida Canyon Mine, approximately 8 miles north of the project area.

3.3 Native American Religious Concerns

The Lovelock Paiute Tribe was contacted by letter and phone. On November 4, 2003 they sent a letter to the BLM. In the letter the Tribe stated their concern that if any burials or funerary objects are uncovered, the Tribe should be notified immediately.

3.4 Special Status Species

The United States Department of the Interior, Fish and Wildlife Service (USFWS) was contacted and requested to furnish information on special status species (threatened and endangered species and species of concern) with the potential to occur within the project area. The USFWS letter of response dated August 6, 2003 (Appendix D) identifies the following special status species as potentially occurring within the Project Area.

- **Threatened Species**

Bald Eagle	*Haliaeetus leucocephalus*

- **Species of Concern**

Mammals

Pygmy rabbit	*Brachylagus idahoensis*
Townsend's big-eared bat	*Corynorhinus townsendii*
Spotted bat	*Euderma maculatum*
Small footed-myotis	*Myotis ciliolabrum*
Long-eared myotis	*Myotis evotis*
Fringed myotis	*Myotis thysanodes*
Long-legged myotis	*Myotis volans*

Birds

Western burrowing owl	*Athene cunicularia hypugaea*
Ferruginous hawk	*Buteo regalis*
Sage-grouse	*Centrocercus urophasianus*
Black tern	*Chlidoniaus niger*
Least bittern	*Ixobrychus exilis hesperis*
White-faced ibis	*Plegadis chihi*

Invertebrate

Nevada viceroy	*Limenitis archippus lahontani*

Plants

Goodrich biscuitroot	*Cymopterus goodrichii*
Windloving buckwheat	*Eriogonum anemophilum*
Owyhee prickly phlox	*Leptodactylon glabrum*
Nevada oryctes	*Oryctes nevadenis*
Obscure scorpion plant	*Phacelia inconspicue*

The Nevada Natural Heritage Program (NNHP) was contacted concerning special status species in the project area. Their letter of response dated July 29, 2003 listed the Nevada Viceroy as a sensitive

butterfly species that may occur in riparian habitat located in the vicinity of the project area. A copy of the Nevada Natural Heritage letter is included in Appendix D.

The following species were eliminated from further analysis in this EA as the project area does not contain suitable habitat for their support: bald eagle, ferruginous hawk, black tern, least bittern, white-faced ibis, Goodrich biscuitroot, windloving buckwheat, Owyhee prickly phlox, Nevada oryctes and the obscure scorpion plant

The following disucussion presents a description of the special status species, and associated habitat requirements that have the potential to occur within the project area.

Pygmy rabbit is the smallest North American rabbit and a sagebrush obligate. The pygmy rabbit uses tall, dense stands of big sagebrush, primarily basin big sagebrush, with deep, friable soils typically loamy in texture. The Pygmy rabbit mates in early spring and summer. Its primary food is sagebrush, which makes up to 98% of its winter diet. Grasses are important during the spring and summer, comprising as much as 30-40% of its diet. No inventories for pygmy rabbits have been completed within the project area, and potential high quality habitat sites are considered rare. Potential sites include the edges of floodplains in the upper portions of watersheds and degraded floodplains at lower elevation where channel down-cutting has allowed for the invasion of basin big sagebrush into sites that were formerly occupied by wet and semi-wet meadows (BLM, 1981).

All of the bat species listed above use natural caves and cracks in rock outcrops or man-made cavities for breeding, rearing, and/or hibernating habitat. There is no specific information related to breeding colonies of any of these species within the project area. Potential breeding and hibernating habitat is considered common in mountainous and rocky areas. Bats depend upon insect prey and the best potential for insect prey within the project area occurs near wet meadows and marshlands. Road, drill pad construction and reclamation activities would not impact bats or bat habitat provided no caves or rock outcrops are disturbed (BLM, 1981).

The western burrowing owl is a diurnal owl that occupies open terrain with low vegetation, with burrows created by mammals, and an adequate prey base. Although burrowing owl habitat exists in the regional vicinity, no known colonies of western burrowing owls have been observed within the project area (BLM, 2003).

The sage-grouse is a common large bird of the sagebrush zone. Sage-grouse are sagebrush obligates and require large areas of contiguous sagebrush communities. Sagebrush is the primary nesting cover for the sage-grouse and much of the year sagebrush leaves form the major component of their diet. Sage-grouse are found throughout the West and have been declining for many years. Historic records, which are mostly anecdotal, indicate that sage-grouse populations have fluctuated widely in Nevada. NDOW has indicated it considers sage-grouse populations to be declining (Willis et al. 1993). Much of the regional decline is thought to be related to predation in areas of low quality nesting habitat and loss of sagebrush due to wildfire and cheatgrass invasion. A basic requirement of nesting cover is concealment of the sage-grouse hen and her nest. Quality nest sites offer shelter from above by branches, good growth of understory grasses, and sagebrush within 70 centimeters (cm) of the nest. (Wakkinen 1990, Fischer 1994, Sveum et al. 1998a, Holloran 1999).

This species is highly dependent upon the presence of several species and subspecies of shrubs, notably Wyoming, mountain, and basin big sagebrush. Other species such as low and Lahontan sagebrush are also important. Nesting tends to occur at mid-elevation habitats that support adequate shrubby and herbaceous plant cover (Connelly et al. 2000). Spring, summer, and fall ranges with a good compliment

of native grasses and forbs are associated with productive sage-grouse habitat. During the winter, sage-grouse forage almost exclusively on either big sagebrush or low sagebrush depending upon severity of snowfall and migratory habits of populations.

Hens with broods require well-sheltered areas that provide protection from predators and the weather (Wakkinen 1990, Gregg 1991, Sveum et al. 1998a). Proximity to preferred forbs and insects is important for hen and chick nutrition. (Patterson, 1952, Trueblood 1954, Klebenow and Gray 1968, Savage 1968, Peterson 1970, Johnson and Boyce 1990, Drut et al. 1994b, Pyle and Crawford 1996). Chicks have limited mobility, so suitable food such as forbs and insects must be readily available. As plants mature and dry, broods move to areas still supporting succulent vegetation, especially native meadows and high elevation drainages. These areas are important as a source of forbs, insects, and free water (Girard 1937, Griner 1939, Patterson 1952, Trueblood 1954). Adult and juvenile birds congregate in these wetter areas during late summer and early fall (Peterson 1970, Wallestad 1975a).

As these areas dry, sage-grouse consumption of sagebrush increases and the grouse move to areas with sagebrush that is taller than the snow for the winter season. During the winter, sage-grouse feed almost entirely on sagebrush leaves (Wallestad et al. 1975, Remington and Braun 1985, Welch et al. 1988, 1991). Typical winter ranges are large expanses of dense sagebrush (>10% canopy cover) with an average height of 25 cm. This association with dense sagebrush stands typically begins in September and continues through the breeding season.

A sage-grouse lek is known to occur within the lode claim project boundaries and is within 0.4 miles of the proposed lode claim mineral exploration activities. The last observation of lek activity there was in 1992, following a 1990 release of 109 transplanted sage grouse into the Humboldt Mountain Range. In 1988 one male sage grouse was observed in the area of the lek, but was not strutting (Hampson, 2003).

The Nevada viceroy is a butterfly whose preferred host plants are willows and aspen. Habitat includes riparian areas, meadows, and aspen wood edges. Data supplied by the NNHP (Appendix D) indicates a recording of this specie in Section 18, which is in the general vicinity of Rye Patch Dam. Riparian zones along the eastern edge of Rye Patch Reservoir could provide potential habitat for this species.

3.5 Air Quality

The project area is located with the Humboldt River Hydrographic Region and is considered within the Lovelock Valley hydrographic sub-basin (USEPA, 2003). The air quality in the area is generally good and typical of large rural areas within the Great Basin. The wind is from the west approximately 10 months of the year and the average speed is 8.0 MPH, with a low average speed of 7.2 and a high average speed of 8.6 MPH (NOAA, 2003). Winds may also blow from the north, northeast and southwest. The mean annual precipitation is approximately 7 inches (WRCC, 2003). The mean annual low temperature is 18° Fahrenheit and the mean high temperature is 93° Fahrenheit (WRCC, 2003).

The principal source of air contaminants in the project area is from wind blown dust, both off dry playas in the region, from development activities at the adjacent Humboldt River Ranch and from occasional traffic along dirt roads. The small aggregate mining and processing operation, at the southwest corner of the project area as shown on Figure 4, also contributes some air born dust when operating.

3.6 Wildlife

A small amount of winter range for mule deer (*Odocoileus hemionus*) occurs within the project area however the project area does not support critical habitats for big game species. The pronghorn antelope (*Antilopcapra americanea*) may also be found in limited numbers in the project area.

Mule deer are widespread, typically associated with complex middle to upper elevation landforms that support a wide variety of sagebrush, mountain shrubs, quaking aspen and herbaceous vegetation. Mule deer also use lower elevations during years when heavy snowfall depth forces them to move. Healthy quaking aspen, juniper, mountain shrub, and sagebrush communities provide important tall cover habitats for mule deer.

Mule deer are frequently associated with meadow and riparian habitat contiguous with large expanses of brush. The presence of green vegetation in riparian areas and palatable shrubs with high protein levels in the fall is essential for healthy fall breeding. It prepares mule deer for winter. If these habitats have been negatively impacted, then these areas decrease in value for mule deer.

Deer are generally classified as browsers, and shrubs and forbs make up the bulk of their annual diet. The diet of mule deer is quite varied, however, and the importance of various classes of forage plants varies by season. In winter, especially when grasses and forbs are covered with snow, the entire diet may consist of shrubby species. Tall shrubs and trees are very important for food and cover.

Mule deer currently use the project area as a migration route (Hampson, 2003). Population trends for mule deer in the project area show a downward trend, due primarily to the loss of habitat, including winter forage.

Pronghorn Antelope populations are expanding within the Humboldt Range but are not abundant in the project area (Hampson, 2003). Pronghorn are sagebrush obligates, but are known to use salt desert scrub communities during the late winter and spring. Rangelands with a mixture of grasses, forbs, and shrubs provide the best habitat. The sagebrush community is used for both cover and forage.

Other mammal species in the area include kit fox (*Vulpes macrotus*), bobcat (*Felis rufus*), coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), kangaroo rat (*Dipodomys sp.*), kangaroo mouse (*Microdipodops sp.*), and deer mouse (*Peromuscus maniculatus*) (Covert, 2003).

Game birds known to occur within the project area include chukar (*Alectoris chukar*) and greater sage-grouse (*Centrocercus urophasianus*). Raptor species likely to occur within in the project area include, but are not limited to the prairie falcon (*Falco mexicanus*), golden eagle (*Aquila chrysaetos*), and red-tailed hawk (*Buteo jamaicensis*). Also occurring is the common raven (*Corvus corax*) a resident species of the Great Basin.

Reptile species likely to occur within the project area include, but are not limited to the western rattlesnake (*Crotalus viridis*), gopher snake (*Pituophis melanolucus*) collared lizard (*Crotaphytus collaris*) and side blotched lizard (*Uta stansburiana*).

3.6.1 Migratory Bird Species

Neo-tropical migratory birds are bird species that migrate from the temperate portions of the continent to winter in the tropics of North and South America. Neo-tropical migrants are most commonly associated with habitats with a strong vertical component of woody shrubs and trees. In the project area the most

important habitats are associated with woody riparian communities. The primary locations of these communities include the riparian communities associated with Echo Canyon.

Riparian habitats vary in size and quality for Neo-tropical Migrants. Meadow habitats dominated by grasses and grass-like species without brush or tree cover have less bird species diversity than those with multi-layered canopies.

Executive Order #13186, dated 01/11/01 requires that migratory bird species considerations be included in federal actions. A list of the migratory birds affected by the Executive Order #13186 is contained in 43 CFR 10.13. A complete migratory bird inventory has not been completed for the project area (BLM, 2003).

3.7 Paleontology

The rock unit that would be evaluated under the Proposed Action is the Natchez Pass Formation, which is a massive carbonate of Triassic Age outcropping on the west flank of the Humboldt Range. Here it is composed of thick beds of limestone that form prominent outcrops and which dip gently to steeply to the west. *Trachyceras s.s.*, a characteristic lower Karnian ammonite, has reportedly been collected from the lower part of the Natches Pass Formation in the Humboldt Range (Johnson, 1977). No obvious fossils were observed in the outcrops during reconnaissance and sampling.

3.8 Vegetation

The project area is located within the Basin and Range Physiographic Province and harbors vegetation zones including those dominated by shadscale-greasewood, sagebrush, saline playa, Utah juniper, and salt bush (Cronquist et al., 1972). The plant communities and associated species located within the general project area are described below in order of elevational range from low to high.

The low elevation lake plain terrace is dominated variously by shadscale (*Atriplex confertifolia*) and black greasewood (*Sarcobatus vermiulatus*). Other associates include bud sagebrush (*Artemesia spinescens*), bottlebrush squirreltail (*Elymus elymoides*), Torrey quailbush (*Atriplex torreyii*), Winterfat (*Krashininikovia lanata*). Included in the shadscale zone are contrasting inclusions of basin wild rye (*Lamus cinereus*) and, on sand dunes, four-winged saltbush (*Atriplex canescens*) and Nevada dalea (*Psorothamnus polydenius*).,

Vegetation established on fan piedmonts is dominated by shadscale, snakeweed (*Gutierrexia sp.*), horsebrush (*Tetradymia sp.*) bud sagebrush, prince's plume (*Stanleya piñata*), cheatgrass (*Bromus tectorum*) and bottlebrush squirreltail.

The lower mountain side-slope community includes black sagebrush (*Artemisia nova*), sandberg bluegrass (*Poa secunda*), bottlebrush squirreltail, and scattered Utah juniper (*Juniperus utahensis*). Some inclusions of big sagebrush (*Artemesia tridentate ssp. Wyomingensis*), mountain big sagebrush (*Artemisa tridentate ssp. vaseyana*), basin big sagebrush (*Artemisa tridentate ssp. tridentata*) and bluebunch wheatgrass (*Pseudorogeneria spicata*).

Vegetation on the higher elevation mountain slopes in the project area include the following: vegetation on north facing slopes include mountain big sagebrush, bluebunch wheatgrass, and Idaho fescue (*Festuca idahoensis*). South facing slopes support black sagebrush, Utah juniper and sandberg bluegrass.

3.9 Invasive, Non-native Species and Noxious Weeds

The area covered by the Proposed Action is currently naturally vegetated. No noxious weed inventories have been completed within the project area. Common noxious weeds found within the general project area include: Russian knapweed *(Acroptilon repens)*, Leafy spurge *(Euphorbia esula)*, Perennial pepperweed *(Lepidium latifolium)*, Saltcedar (tamarisk) *(Tamiarix ramosissima)*, Scotch thistle *(Onopordum acanthium)*, and Whitetop or hoary cress *(Cardaria draba)*. Noxious weed inventory data is available at the Winnemucca BLM Field Office. Data is located at m:/gis data/district/weeds.

3.10 Soils

The project area, within the Humboldt River drainage of the Basin and Range Physiographic Province, is characterized by soils developed on a variety of parent materials. These various landforms and environments have been mapped into 3 soil associations, Bubus-Valmy; Misad-Golconda-Tenabo; and Atlow-Wiskan associations. These are described by Zielinski (1994) in the Soil Survey of Pershing County, Nevada East Part. Brief descriptions of study area soil map units are discussed from west to east below (SCS, 1994).

Bubus-Valmy association: The Bubus series occurs on lake plain terraces of 0-2 percent slope and is strongly alkaline, deep, and well drained. The Valmy series is loamy fine sand on 2-8 percent slopes, also deep and well drained and moderately alkaline. The Bubus-Valmy association is classified as a mesic Durorthidic Torriorhent. Water and wind erosion hazard are slight.

Misad-Golconda-Tenabo association: This association occurs on fan skirts, piedmonts, and piedmont remnants. All three series are deep, well drained, moderately to strongly alkaline, sandy and gravelly loams formed in mixed fan alluvium on 2-8 percent slopes. The Misad is classified as a mesic Durothidic Torriorthent, while Golconda and Tenabo are Haplic and Typic Nadurargids, respectively. Water and wind erosion hazards are slight.

Atlow-Wiskan association: This association comprises soils developed on residual mountain slopes of chert, argillite, shale, rhyolitic tuff, and andesite. Atlow soils are on south and west-facing slopes and offer 15 inches to bedrock, while Wiskan soils are on north and east-facing slopes with 30 inches depth. Soils are on 30-50 percent slopes with shallow, poorly drained subsoil characteristics. Both are classified as Xerollic Haplargids. Water erosion hazard is high and wind erosion hazard is slight.

As described above, there is great variability in the mapped soils within the study area. Each soil series has specific characteristics that should be considered during project planning and construction.

3.11 Geology

The rock unit that would be evaluated under the Proposed Action is the Natchez Pass Formation, which is a massive carbonate of Triassic Age outcropping on the west flank of the Humboldt Range. The unit is composed of thick beds of limestone which form prominent outcrops and which, structurally, are part of a northeast-southwest trending monocline that is truncated on the west by a major range-front fault at the base of the mountain. The attitude of the beds of the monocline ranges from near horizontal to gently westward dipping on the east side of the outcrop area to very steeply westward dipping on the west.

The other geologic units affected by the proposed drilling program would be the alluvial fan at the western base of the range and the lake sediments on the mill site claims. The alluvial fan consists of

sands and gravels derived from the adjacent Humboldt Range and consists primarily of carbonates. The fan shows no surface evidence of secondary cementation therefore is relatively young in age. The lake sediments on the mill site claims consist primarily of silt with some fine-grained sand near the surface, originally derived from prehistoric Lake Lahontan which last covered this area as late as approximately 10,000 years ago. Subsequent to the lake level dropping, surface winds have exfoliated some of the finer near-surface sediments and created occasional sand dunes.

Surface sampling of the outcrop area in section 14 indicates the unit at the surface is composed of limestone suitable for cement manufacture. Very little dolomite was detected. Appendix E contains three geochemistry reports on surface samples taken in 1992 when the lode claims were located. Results indicate the limestone has a high potential for use as a cement raw material. Calcium carbonate values are good and alkali and magnesium values are minimal.

Limestone suitable for cement manufacture is locatable under the federal mining laws.

3.12 Recreation

The land encompassing the Proposed Action is adjacent to nearby access roads therefore the public who travel these roads would have easy access. The steeper mountain front may be occasionally used for recreational hiking, but does not have vehicle access. The mill site claims have existing vehicle trails and may be used for both hiking and off road vehicle use. Adjacent to the project area is Rye Patch Reservoir which provides camping, boating and fishing recreation.

3.13 Socio-Economic

Nevada Cement Company has been a major industry in western Nevada since 1964, providing steady employment and income for currently 120 people. In addition, the cement produced from their Fernley plant has been of beneficial use for all types of construction throughout Northern Nevada and Northern California. NCC's plant in Fernley is the only cement plant in Nevada. If NCC was not in the local market, cement would have to be imported from Northern California or Utah and Nevada would lose the tax income and employment. Present production is approximately 560,000 tons of cement per year, which equates to approximately 4.5 million cubic yards of concrete. This concrete is used in virtually all construction activity in northern Nevada, from building Interstate Highways to foundations for homes. The present limestone resource near Fernley has a limited life. When the Fernley limestone resource is exhausted, NCC has the option of ceasing operations or moving to a new location near the Echo Canyon limestone deposit.

The proposed drilling program, which is the subject of this EA, has an approximate $500,000 budget. Some of this money would be spent in Pershing County, for food, lodging, fuel and other supplies necessary for a drilling program. A local contractor would be used for road construction and reclamation. In addition, a portion of this money would go to Nevada based drilling contractors and consultants. There will be three drillers and one geologist to log the drill holes, all of which will be on site for the majority of the proposed drilling program.

Lovelock and Winnemucca are the two largest cities in the vicinity of the project site. Both provide access to the project site via Interstate Highway 80. Lovelock is 25 miles to the southwest and Winnemucca is 50 miles to the northeast. Both cities could provide accommodations (hotels & motels) for out-of–area workers involved in project activities.

3.14 Water Quality

3.14.1 Surface Water

The Echo Canyon project area (lode claims and private property proposed for exploration drilling, and the mill site claims) is located within State of Nevada Hydrographic Basin No. 72, the Imlay Area. The, major perennial drainage in the project area vicinity is the Humboldt River (and Rye Patch Reservoir) which is located approximately 3.5 miles west of the exploration drilling sites, and approximately 0.5 mile west of the mill site claims.

Surface flow in the project area is generally west toward the Humboldt River. The west slope of the Humboldt Range where the exploration drilling would take place is cut by intermittent/ephemeral drainages. These drainages only carry surface flows during major precipitation events or seasonal snow melt, with flows diminishing downslope on the alluvial apron due to infiltration and evaporation before they would reach the Humboldt River. There are some springs within the general project area vicinity, however there are no recorded springs or seeps within the project area boundaries.

3.14.2 Groundwater

Groundwater in the project area vicinity naturally flows to the west/southwest from the western range front of Humboldt Mountains towards Rye Patch Reservoir (USGS, 1996). Information from the Nevada Division of Water Resources, State Engineer's Office (NDWR), indicates that the average perennial and annual yields for Hydrographic Basin No. 72 are 3,000 acre feet per year, respectively (NDWR, 2003). In the exploration drilling area along the west slope of the Humboldt Range, groundwater underflow is generally from deeper water-bearing bedrock zones down through alluvial and lacustrine valley fills towards the Humboldt River. Due to the position of the project area on the hillside, groundwater zones are expected to be generally deep in the exploration drilling area, however some minor perched or shallow aquifers could be intercepted during drilling. Groundwater in the vicinity of the mill site claims located approximately 0.5 mile east of the Humboldt River is found in the alluvial and lacustrine valley fill materials. During the seasonal high, groundwater in this location is expected to be greater than 60 inches below the surface (SCS, 1994). A geothermal resource is being developed approximately 6 miles north of the project area, however no geothermal resources are known to occur within the project area.

4.0 ENVIRONMENTAL CONSEQUENCES

The environmental consequences section discusses the environmental effects of the Proposed Action and No Action Alternative and includes any appropriate mitigation measures.

4.1 Proposed Action

4.1.1 Visual Resources

The Proposed Action in the Humboldt Range would result in short term visual impacts, principally affecting the visual elements of line and color. Horizontal and shallow diagonal lines from the exploration drill roads would cause low to moderate, temporary line contrasts with the natural landscape. In some cases the diagonal lines from the exploration roads may mimic the existing diagonal lines of the landscape. Disturbance of vegetation would cause moderate, temporary color contrasts.

The exploration roads and drill sites would be located on the mountain side several hundred feet higher than the valley to the west where most observers would be viewing the project area. During construction and drilling operations, and in the early stages of the reclamation process, the exploration roads and drill sites would be highly visible to the residents of Humboldt River Ranches, people visiting the truck stop, and travelers along Interstate 80.

With successful recontouring and revegetation of the exploration roads, long-term impacts would be minimized. Even if the road is rehabilitated immediately after use, the visual impact of the disturbance will remain much longer than three months. There will likely be a color contrast between the bare earth or new vegetation verses the adjacent mature vegetation. The effects of the Proposed Action on visual resources would be consistent with BLM Class II VRM management objectives.

The Proposed Action on the mill site claims would also result in short term visual impacts as viewed from the emigrant trail which is KOP #2. Disturbance of vegetation would cause moderate, temporary color contrasts. Successful restoration and revegetation of the disturbed sites would mitigate long-term impacts. The effects of the Proposed Action on visual resources in this area would also be consistent with BLM Class II VRM management objectives.

4.1.2 Cultural Resources

No cultural resource sites were found within the project area. Therefore no direct impacts to cultural resources are anticipated as a result of the Proposed Action. If project activities did expose any unanticipated cultural resources, activities at this specific site would stop immediately an NCC's Project Manager would immediately notify the BLM. The BLM would determine appropriate actions.

Impacts to cultural resources would include direct physical destruction and burying of resources by heavy equipment. It is anticipated that these impacts would be minimal based on the cultural inventory. Implementation of environmental protection measures (Section 2.1.9.6) would further minimize impacts to cultural resources.

The California Emigrant trail is in close proximity to the drilling and road building on the mill site claims. The drill rig would be seen from the trail for the short period of time when it would be drilling the two holes. The access road leading into the drill site is cross-country travel and would not impact the trail. The Proposed Action would leave these two wells in place so the water levels in the holes could be

monitored, however the wellheads should not be visible from the trail. Because the Proposed Action is of short duration and the wellhead monitoring limited there should be minimal impact to those traveling the emigrant trail. Mitigation measures would include reclaiming the area promptly after the water wells are completed, and limited the height of the well heads to no more than 12 inches above the surface so they would not be seen from the trail.

4.1.3 Native American Religious Concerns

No impacts to Native American religious concerns are anticipated. If during the course of work and Native American burials or funerary objects are found, work would immediately cease, and the BLM would notify appropriate Tribes.

4.1.4 Special Status Species

Potential impacts to special status species that could result from the Proposed Action are discussed below.

Impacts from drilling and reclamation activities could temporarily displace pygmy rabbits. Loss of potential habitat would occur as a result of vegetation removal required to construct project access roads and drill pads. Impacts to nesting pygmy rabbits are not expected since the project area does not occur in a high quality habitat area.

No negative impacts to the burrowing owl are expected to occur from construction and reclamation activities due to the lack of preferred habitat and occurrence of the species within the project area. Potential positive impacts to the burrowing owl may occur from access road and drill pad construction activities. Burrowing owls are often found nesting along unimproved roads where soils have been disturbed and rodent activity has developed a burrow system that the owls could use.

Construction activities during the breeding season (March - May) could impact sage-grouse due to the close proximity of the project to a lek and disturbance to lekking activities the construction activities would produce. In addition, sage-grouse nesting and brood-rearing (April – August) in the project area would be impacted by disturbance from construction and drilling activities. Impacts to sage-grouse during winter (October – March) construction activities would temporarily displace those individuals utilizing the area during the construction period. Removal of vegetation, especially sagebrush, would reduce the available nesting, brood-rearing and predator protective cover, and forage available to the sage-grouse within the project area. The NDOW will provide guidelines for the drilling program to mitigate potential impacts to this species. These guidelines will be coordinated with the BLM and will be stipulated in the Decision Record for the project. A possible positive impact to the sage-grouse population is the potential for reclaimed roads and perhaps drills pads to become future lek sites.

Impacts to the Nevada viceroy are not expected as the exploration drill sites and the proposed cement plant site do not contain any riparian habitat.

4.1.5 Air Quality

The Proposed Action would generate fugitive dust during construction of the roads, drill pads, drill rigs, and vehicle travel along roads. Removal of vegetation would make soils vulnerable to wind erosion causing blowing dust. These impacts would be reduced based on implementation of environmental protection measures as described in section 2.1.9.4. Overall impacts to air quality would be low as

disturbance would be localized, short in duration, and would be further reduced once reclamation and re-vegetation of disturbed areas occurs.

4.1.6 Wildlife

Wildlife impacts would consist of habitat loss and fragmentation, as well as disturbance and temporary displacement during project activities. The duration of project activities is expected to be three months. No restriction of wildlife movements in the project area would occur since the installation of fences or other movement restrictive features would not occur. Physical injury to less mobile species such as reptiles may occur as a result of proposed project activities. Should any wildlife mortalities occur, as a consequence of the Proposed Action, BLM and NDOW would be notified immediately.

Impacts to wildlife would be limited given the small amount of disturbance and avoidance of the nesting habitat for migratory birds during the breeding season. Prior to any disturbance during migratory bird nesting season (March – June) a BLM-approved biologist would conduct the necessary surveys. Disturbance to any known nest sites would be avoided and drill holes and access roads relocated if necessary.

The proposed project activities including the construction of drill pads and access roads, and reclamation activities would impact nesting activities of neo-tropical migratory birds if conducted during the nesting season (March – June). The removal of area vegetation would reduce the amount of available nesting and foraging habitat within the project area. Drill pad and road access construction activities, conducted outside the nesting period, would temporarily disturb any birds utilizing those areas during the construction period.

Project road, drill pad construction and reclamation activities would temporarily displace mule deer utilizing the area during the construction period. Removal of vegetation would reduce the available mule deer cover and forage within the project area.

Project road, drill pad construction and reclamation activities would temporarily displace pronghorn antelope utilizing the area during the construction period. Removal of vegetation would reduce the available antelope cover and forage within the project area.

4.1.7 Paleontology

The limestone unit on site reportedly contains fossils. Most limestone deposits contain fossils. The potential for occurrence of vertebrate fossils is possible in the lucustrine sediments within the project area. Efforts would be made during project activities to avoid fossils. The drill program will only affect a small portion of the entire limestone unit. If fossils are observed, NCC will contact the BLM to determine appropriate actions.

4.1.8 Vegetation

Disturbance of vegetation could be short in duration and reclamation activities described in the Proposed Action would return the area to near pre-exploration vegetation conditions. Environmental impacts include the removal of 14 acres of vegetation. These impacts would be off set by reclamation after operations have been completed. Seeding of disturbed areas would change the diversity of vegetation in the short term. However, in the long term, re-establishment of the native vegetation of the area should occur.

4.1.9 Invasive, Non-native Species and Noxious Weeds

Disturbance of ground during the life of the Proposed Action could facilitate the establishment of invasive, non-native species and noxious weeds. Invasive, non-native species and noxious weeds, if found, would be chemically controlled prior to reseeding the recontoured ground. The spread of noxious weeds would be limited once reclamation activities, which include revegetation, are successful. Revegetation would be accomplished per recommendations of the BLM. Based on the implementation of environmental protection measures described in Section 2.1.9.5, impacts from the establishment and spread of noxious weeds would be low.

4.1.10 Soils

The natural soils would be disturbed at the project site, however, after reclamation is complete the effects would be negligible.

Impacts include removal of vegetation which would make the soils more vulnerable to wind and water erosion. Environmental protection measures to reduce impacts would include sprinkling of the exposed soils, minimizing areas of disturbance as much as practical, concurrent reclamation where feasible, and the use of BMP as listed below.

Suitable growth medium, if encountered, would be stockpiled on site and, at the cessation of exploration activity, re-spread on the disturbed surface and reseeded.

BMP would be implemented to prevent erosion of the temporary constructed roads and drill pads. These would include berms, silt fences, fiber rolls or sediment traps as needed.

4.1.11 Geology

Under the Proposed Action impacts would be limited to the exploration drilling. The geology would not be affected.

4.1.12 Recreation

Recreation activities in the area of the proposed exploration program would be limited in the vicinity of the working equipment. The impact would be minimal because there are abundant nearby public lands suitable for similar recreation activities. Immediate access into the project area would be restricted during drilling operations to ensure public safety.

4.1.13 Socio-Economic

The Proposed Action would have a positive economic effect on the economy of Pershing County. The drilling program, if it goes forward, has a budget of approximately $500,000. Some of this money would be spent on local contractors in building and reclaiming the roads and drill pads. In addition, for three months the personnel working on site during the drilling would be staying at local motels in Lovelock, eating at local restaurants, and would buy at least some of their supplies locally.

4.1.14 Water Quality

Impacts to groundwater resources could include contamination from drilling fluids. These impacts would be low due to the enforcement of State of Nevada drilling procedures. Impacts to other groundwater

sources including potable or agricultural operations are not anticipated. Implementation of environmental protection measures would further reduce impacts.

Impacts to surface water resources could include the potential for drilling fluids to enter ephemeral drainages via surface flows from drill pads; and the potential for sediment to enter drainages via erosion caused by surface runoff from access roads and drill pads. Implementation of BMP and the use of drill site sumps would inhibit the potential for these events to occur.

The location of the Proposed Action would not result in sediment entering the Humboldt River or the Rye Patch Reservoir. The distance from the drilling on the lode claims is approximately 3.5 miles from the river or Rye Patch Reservoir which would inhibit any sediment from the project site entering the river or reservoir. Any sediment leaving the site would be filtered out and contained by the alluvial fan located between the river and the project site. Although the mill site claims are within a half mile of the reservoir, the slope of the ground is essentially flat. The terrain would not generate surface flow that would reach the river in this area.

4.2 No Action Alternative

The No Action Alternative would result in no proposed disturbance therefore no impacts would occur. The positive socio-economic impacts from implementation of the Proposed Action would not occur under the no action alternative.

5.0 CUMULATIVE IMPACTS

5.1 Cumulative Actions

As defined in 40 CFR 1508.7 (regulations for implementing NEPA) a cumulative impact is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

All resource values for the Proposed Action have been evaluated for cumulative impacts. It has been determined that cumulative impacts would be negligible as a result of the Proposed Action or alternatives. In the event NCC pursues mining on the property at a later date, the cumulative impacts resulting from a mining operation would be evaluated.

5.2 Cumulative Effects Study Area

The Cumulative Effects Study Area (CESA) for the Echo Canyon Project is defined as the approximate 48 square miles surrounding the general project area. Figure 6 illustrates the cumulative effects study area. This area includes both BLM administered public lands and private lands within the vicinity of the project site. The project is bounded to the east by the Humboldt Range; to the north by the Township Line separating Townships 30 North and 31 North; to the west by an established Section Line just west of Rye Patch Reservoir; and to the south by an established Section Line located approximately 1.5 miles south of the Echo Canyon Project lode claims boundary.

5.3 Past and Present Actions

Past and present actions in the study area include railroad construction and operations; highway construction, upgrading and maintenance of primary and secondary roadways including Interstate Highway 80; jeep trail/road establishment; geothermal activity; livestock grazing; quarrying for aggregate and construction materials; dispersed, modern-day mineral resource exploration; historic mining and prospect sites (including the Standard Mine two miles north of the project area which may be developed by Apollo Gold); construction of Rye Patch Dam and Reservoir; construction and maintenance of electric transmission lines, a natural gas pipeline and the utility corridors; dispersed recreation; commercial construction and operations; and dispersed ranching and residential development including roads and houses.

5.4 Reasonably Foreseeable Future Actions

Reasonably Foreseeable Future Actions (RFFAs) within the CESA would include development of the future Echo Canyon Quarry, and associated infrastructure, development of the cement plant and associated infrastructure, increased residential and commercial development on private lands adjacent to Rye Patch Reservoir, continued livestock grazing, improvements to both the Union Pacific Railroad and Interstate Highway 80, expansion and/or development of new utility corridors, and continued widespread exploration and evaluation of mineral resources.

Possible future development of the old Standard Mine may be proposed by Apollo Gold on public and private lands. The estimated reopening of the Standard Mine would result in 206 acres of new surface disturbance on private land.

The possible future quarry would be within the limestone bedrock unit and would encompass approximately 80 acres. The quarry would be benched. Blasting would loosen the rock which would then be loaded onto a conveyor belt for transport to the possible plant site on the mill site claims approximately three miles to the west. There would be an access road along the route of the conveyor belt. The plant site would include a new, state-of-the-art cement plant with accompanying buildings and office covering approximately 50 acres. The main access road into the plant would join the existing paved access road to the adjacent Rye Patch freeway overpass and exit. A rail spur and siding into the plant would be constructed. Water wells and various other infrastructures necessary for a cement plant would also be constructed.

5.5 Cumulative Impact Analysis for the Proposed Action

5.5.1 Visual Resources

5.5.1.1 Past Actions

In the past, impacts to visual resources in the CESA have occurred primarily because of developments on private lands, or because actions on federal lands occurred prior to implementation of BLM visual resource management. These past developments include Interstate Highway 80, gravel pits, the Union Pacific Railroad track system, residential developments, recreational unpaved roads, Rye Patch Reservoir, the truck stop and other commercial businesses that support the local residential and recreational uses, and mineral exploration. Impacts to visual resources from past actions within the CESA are considered to be moderate.

5.5.1.2 Present Actions

Current proposed actions on BLM managed lands are now subject to visual resource management and must meet VRM Class II management objectives. Most of the present developments within the CESA are located on private lands and are not subject to management by BLM. The developments on private lands result in moderate cumulative impacts within the CESA.

5.5.1.3 RFFAs

Cumulative visual impacts resulting from RFFAs in the general project area would include impacts from the construction of the potential limestone pit and associated roads and infrastructure on the west slope of the Humboldt Range; the construction of the cement plant and associated infrastructure facilities on the mill site claims; and continued residential and other potential commercial development in the vicinity of the cement plant site.

The open pit site is located several hundred feet higher than the valley to the west where most visual observances would occur, particularly from Interstate Highway 80, and possibly Rye Patch Recreation Area. Long term cumulative visual impacts from this RFFA would be high because it would alter character of the existing landscape. Development of the plant site, when viewed along with potential, future residential and commercial developments on adjacent private land would be rated as a moderate to high long term cumulative impact as it would also result in a change to the existing landscape character within the VRM Class II management area.

Construction of RFFAs including the mine, plant site and other residential and commercial development on private land in the vicinity of the project area would result in long term cumulative visual impacts as

viewed from both the Rye Patch Recreation Area and the Emigrant Trail. The changes in landscape character resulting from these potential RFFAs would lower the overall recreation quality and experience from users of the recreation area. These impacts would be rated as moderate to high depending on the actual view as observed from a particular location within the recreation area, or along the Emigrant Trail.

5.5.2 Cultural Resources

5.5.2.1 Past and Present Actions

Prior to the passage of the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, the Federal Land Policy & Management Act of 1976 and the Archeological Resource Protection Act of 1979, few if any measures to control or minimize impacts to cultural resources were required. Impacts to cultural resources occurred due to mining and other development activities. Archeological survey and mitigation at Rye Patch Reservoir performed for the Bureau of Reclamation by the Nevada State Museum in 1975 and 1976 help reduce impacts in this area. Other impacts occurred due to unauthorized collection and excavation. Overall impacts to cultural resources within the CESA were low to moderate.

Implementation of cultural resource laws has averted most impacts to cultural resources on public land from development activities. Some impacts have continued to occur due to unauthorized collection and excavation. Increased recreation use and development may increase the potential for collection of artifacts. Impacts to cultural resources due to present actions are low.

5.5.2.2 RFFAs

Cumulative impacts to cultural resources due to RFFAs in the CESA are expected to be low. Impacts due to unauthorized collection and excavation may continue.

Development of a quarry, plant and increased residential development would impact a larger surface area, increasing the potential for adverse cumulative impacts. These impacts would be mitigated based on permitting requirements to inventory areas prior to development.

Development of the proposed Standard Mine would result in 206 acres of new surface disturbance on private land.

5.5.3 Native American Religious Concerns

5.5.3.1 Past Actions

Impacts to Native American sacred sites, traditional cultural properties and burials may have occurred inadvertently during development activities in the past. Some impacts may also have occurred due to unauthorized excavation of cultural sites. Impacts to Native American Religious Concerns within the CESA are considered to be low.

5.5.3.2 Present Actions

Impacts to Native American resources have been largely avoided through Native American consultation efforts. Some impacts from unauthorized excavation may still occur.

5.5.3.3 RFFAs

Cumulative impacts Native American resources from RFFA's are expected to be low.

5.5.4 Special Status Species

5.5.4.1 Past and Present Actions and RFFAs

There would be no cumulative adverse impacts to any listed threatened or endangered species as none of these species identified by the USFWS are known to reside within the cumulative study area. Cumulative impacts to species of concern including the various bat species, burrowing owl, pygmy rabbit, sage grouse and the Nevada viceroy would be dependent on the amount of surface disturbance that would affect habitat.

Special status species have specific habitat requirements. For example, habitat for the bat species includes caves, crevices, and steep rocky outcrops. It is unlikely that these special habitats would be affected from RFFAs within the cumulative study area. As such, impacts to these species would be low. Impacts to sage grouse from RFFAs would be low based on implementation of mitigation measures and conservation management plans for this species.

5.5.5 Air Quality

5.5.5.1 Past Actions

Cumulative impacts to air quality from past actions included impacts from emission sources including windblown dust and dust from recreational traffic on unpaved roads, traffic on unpaved residential roads in the Humboldt River Ranch development, emissions from railroad equipment and vehicles traveling Interstate Highway 80 and widespread mineral exploration activities. These activities have resulted in a minimal impact to air quality in the CESA and impacts to air resources are considered to be low.

5.5.5.2 Present Actions

Cumulative impacts to air quality for the preset are the same as past actions.

5.5.5.3 RFFAs

Impacts to air resources from RFFAs could result from an increase in dust from recreational vehicles on unpaved roads, increase from residential traffic on unpaved roads in the Humboldt River Ranch development, continued emissions from railroad equipment and vehicles traveling along Interstate Highway 80, and fugitive dust from activities occurring as a result of the proposed mineral exploration activities. In addition, should the mineral exploration indicate suitable limestone for cement manufacturing, a mine and cement plant may result. Construction of the facilities would be subject to state and federal air quality standards. Should the mine and cement plant be constructed additional impacts to air quality would occur. The quarry and plant would generate fugitive dust from increased vehicle traffic, rock crushing, blasting and pollutants from the plant. These air quality impacts would be controlled based on requirements of the NDEP air pollution control permit and permitting mitigation measures developed by BLM. Impacts to air resources within the CESA are considered moderate provided air quality standards are met.

Potential air quality impacts from the proposed Standard Mine would be mitigated through the air quality permits issued by the NDEP Bureau of Air Quality and the BLM permitting process.

5.5.6 Wildlife

5.5.6.1 Past Actions

Cumulative impacts have occurred to wildlife as a result of past actions. Sagebrush habitat in the CESA area has been reduced due to wildland fires, mineral activities, urban development, grazing and recreational activities. The above mentioned activities have likely resulted in the take of wildlife species, including games species as a result of recreational hunting. In addition, the decrease in available sagebrush habitat impacts other sagebrush obligate species including migratory birds. Cumulative impacts to wildlife from past actions, is considered to be low in the CESA.

5.5.6.2 Present Actions

Impacts to wildlife due to present actions have occurred and are considered to be the same as past actions. Impacts to wildlife in the CESA are expected to remain low due to regulated hunting levels and protection of existing sagebrush habitats.

5.5.6.3 RFFAs

Cumulative impacts to wildlife and their habitats would continue with RFFAs in the CESA. This would include, as in past and present actions, the impacts from additional wildland fires, mineral activities, urban and industrial development, grazing and recreational activities. RFFAs impacts to wildlife within the CESA are considered to be low provided impacts to sagebrush habitats and sagebrush obligate species remain low.

5.5.7 Paleontology

5.5.7.1 Past Actions

Some impacts to paleontological resources may have occurred in the past due to widespread mineral exploration and mining. Some impacts may also have occurred from unauthorized collection of vertebrate fossils. These impacts are considered to be low.

5.5.7.2 Present Actions

Some impacts to paleontological resources have been avoided through NEPA. Some looting may continue. Impacts remain low.

5.5.7.3 RFFAs

Cumulative impacts to paleontological resources in the CESA are expected to remain low.

5.5.8 Vegetation

5.5.8.1 Past Actions

Cumulative impacts to the native vegetation occurred as a result of past livestock grazing, agricultural activities, railroad and highway construction and utility corridors. These impacts are considered low.

5.5.8.2 Present Actions

Impacts to vegetation from actions are considered to be the same as past actions. These impacts, if they continue as expected, would be considered low to moderate.

5.5.8.3 RFFAs

Cumulative impacts to vegetation within the CESA would be moderate and dependent on the degree of surface disturbance. Development of the RFFAs within the CESA would result in long-term cumulative impacts to vegetation. Continued development of the Humboldt River Ranch Development and the commercial and industrial development on private lands could impact several thousand acres of native vegetation on private land within the CESA. The Proposed Action would impact an estimated 80 acres at the proposed quarry site and 50 acres at the proposed cement plant site. Reclamation of these sites following the completion of mining and processing activities would mitigate impacts to BLM administered public lands.

Development of the Standard Mine would result in a short-term and long-term cumulative loss of vegetation. This would include 206 acres of vegetation associated with the open pit and mine infrastructure facilities. Following the completion of reclamation activities, the long-term cumulative vegetation loss would be the 79 acres associated with the open unreclaimed pit. Vegetation impacts from this RFFA would be moderate.

5.5.9 Invasive, Non-native Species and Noxious Weeds

5.5.9.1 Past and Present Actions

Past actions have resulted in the introduction of non-native, invasive species to the vegetation matrix in the CESA. These actions probably allowed for introduction of noxious weeds. However, no noxious weed surveys have been completed to confirm this. Cumulative impacts from invasive, non-native species from present actions in the Cumulative Effects Study Area are expected to be moderate. Continued development in the CESA contributes to the potential for non-native, invasive species to become established. Weed control programs and practices are utilized to minimize establishment and spread of these species. If noxious weeds become established, a noxious weed control program would be implemented specific to the weed species found. Control measures would comply with federal and state regulations.

5.5.9.2 RFFAs

Invasive/noxious weed impacts would be dependent on the amount and degree of surface disturbance. Need to bring forward estimated disturbance acres for all RFFAs. Impacts would be moderate however, mitigation measures would be considered to control weeds during the quarry plant permitting process. Based on implementation of environmental protection measures described in section 2.1.9.5, impacts from the establishment and spread of noxious weeds would be low.

5.5.10 Soils

5.5.10.1 Past and Present Actions

Cumulative impacts to soils have occurred during past actions and continue to occur as a result of railroad and road construction, recreation, agricultural activities including livestock grazing, residential development and mineral exploration. Impacts from recreation were considered low because of its dispersed nature and the small amount of surface area traveled in the Cumulative Effects Study Area. Impacts from grazing were considered low because of the ratio of the Cumulative Effects Study Area in relation to the larger size of the Grazing Allotment Area. Overall cumulative impacts to soils from past and present actions in the Cumulative Effects Study Area are considered to be low to moderate based on the use of improved methods of soil handling, and short and long-term erosion prevention techniques including BMP implemented during surface disturbing activities.

5.5.10.2 RFFAs

Impacts to soils could occur in the Cumulative Effects Study Area due to RFFAs. Impacts could occur from continued railroad, highway and road construction, residential development and mineral exploration and mining. However, the cumulative impacts on soils in the Cumulative Effects Study Area due to RFFAs are considered to be low to moderate based on the use of improved methods of soil handling, and short and long-term erosion prevention techniques including BMP employed during construction activities and revegetation of disturbed soils.

Development of the Standard Mine would result in a short-term and long-term cumulative loss of surface area soils. This would include 206 acres of surface soils associated with the open pit and mine infrastructure facilities. Following the completion of reclamation activities, the long-term cumulative surface soil loss would be the 79 acres associated with the open unreclaimed pit. Soil impacts from this RFFA would be moderate.

5.5.11 Geology

5.5.11.1 Past Actions

Impacts to geology to the CESA have occurred from past widespread exploration and mining activities. These impacts were a result of the removal of waste rock and ore from small mining claims. Impacts to geology are considered to be low.

5.5.11.2 Present Actions

Cumulative impacts to geology are considered to be the same as in the past.

5.5.11.3 RFFAs

Additional RFFAs impacts from the proposed mineral exploration, future mining activities and a cement plant could occur. Impacts to geology within the CESA from the RFFAs would be considered low to moderate.

5.5.12 Recreation

5.5.12.1 Past and Present Actions

Minimal impacts to recreation have occurred in the past and present due to the loss of lands available for public use due to various land use activities on BLM managed public land and residential development on private land. The impacts to recreation are considered to be low.

5.5.12.2 RFFAs

Construction of RFFAs including the open pit, the cement plant and increased residential and commercial development on private lands adjacent to the cement plant would result in long term cumulative recreational impacts. The proposed open pit site is located on un-roaded BLM administered public lands along the west slope of the steep Humboldt Range. The only access within this specific area would be the proposed exploration roads. Impacts from the open pit development would be low as it would not impact any developed recreation areas or recreational access. Existing recreational sites and opportunities within the general project area would mitigate impacts from the proposed open pit site.

Development of the cement plant site and associated infrastructure, and increased residential and commercial development on adjacent private lands would result in long term cumulative impacts to recreational opportunities in the vicinity of the plant site. As future development on BLM administered public land and private land in this area continues, access to recreational sites could be blocked, and various dispersed recreational activities such as hunting and fishing could be impacted. Additional potential recreation impacts are described in Section 5.5.1.3. Long term cumulative recreational impacts would be rated as low to moderate.

5.5.13 Socio-Economic

5.5.13.1 Past Actions

Minimal cumulative impacts to socio-economics due to past actions within the CESA have occurred. The general CESA is sparsely populated. Past railroad, highway construction, residential development and agricultural activities have been a low but positive impact to socio-economics in the past.

5.5.13.2 Present Actions

Cumulative impacts to socio-economics are considered to be the same as in the past. As current development continues, a low but positive impact would occur.

5.5.13.3 RFFAs

Positive impacts to socio-economics would occur from the additional employment opportunities the proposed mineral exploration project and future mining operation would provide. Should a limestone quarry and cement plant be built, additional positive impacts would occur due to the increased employment opportunities. Cumulative impacts to socio-economics are anticipated from RFFAs, and the over all positive impact is considered to be moderate to high.

Development of the proposed Standard Mine would maintain regional area employment opportunities and the local economy, and would increase the Pershing County tax base. The positive cumulative impact resulting from this RFFA would be rated as high.

5.5.14 Water Quality

5.5.14.1 Past Actions

Cumulative impacts to water resources resulting from past actions in the CESA are primarily related to the construction of Rye Patch Dam and Reservoir within the Humboldt River. Other activities including past mining, past geothermal activity, construction and maintenance of the Union Pacific Railroad, Interstate Highway 80 and paved secondary roads; construction of utility facilities such as electric transmission lines and pipelines; dispersed recreation activities; agriculture and livestock grazing activities; and residential development could also have contributed to water resource impacts. Past impacts from the construction of Rye Patch Dam and reservoir are considered high while impacts from the other actions are considered low to moderate.

5.5.14.2 Present Actions

Present action that could impact water resources in the CESA include management of Rye Patch Dam and Reservoir; improvements and maintenance to the Union Pacific Railroad system and Interstate Highway 80; improvements and maintenance to paved secondary roads; expansion of utility facilities such as electric transmission lines and pipelines; and continued residential development. Dispersed recreation activities, agriculture and livestock grazing activities, and widespread mineral exploration could also contribute to water resource impacts within the CESA. These impacts would be considered low as the major infrastructure facilities are already in place.

5.5.14.3 RFFAs

Impacts to water resources that could result from RFFAs would be similar to those described in the Present Action. In addition, development of the cement plant, and continued development of the Humboldt River Ranch and other residential and commercial developments would contribute to increased cumulative groundwater demands. Available geologic information indicates the limestone mine, if developed, would not impact groundwater resources.

The cement plant site is located in State of Nevada hydrographic basin No. 72, Imlay Area. Information provided by the Nevada Division of Water Resources, State Engineer's Office (NDWR) indicates that total perennial and annual yields of 3,000 acre feet, respectively of groundwater is available for all uses in this basin (NDWR, 2003). Process facility information provided by Nevada Cement indicates the cement plant would require a maximum annual use of 700 acre feet of groundwater per year. This water could be provided by groundwater wells approved by the NDWR. Approval of this groundwater use would be made by the NDWR.

Continued residential and commercial development in the general project is expected to occur over many years. As this development continues, cumulative impacts to annual groundwater use would be high as demand increases. This use would be evaluated by the NDWR with approvals and appropriations granted as determined.

Nevada cement proposes to drill two monitor wells on the mill site claims in the vicinity of the plant site. As the project proceeds, these wells would be used to collect water samples and could also be converted to production wells. This conversion would be coordinated with the NDWR.

5.6 Impact Analysis for No Action Alternative

Under the No Action Alternative, cumulative impacts would be similar for all resources for past and present actions. There would be no cumulative impacts from any RFFAs for mineral exploration or mining if the Proposed Action is not implemented.

6.0 CONSULTATION AND COORDINATION

6.1 List of Preparers

Bureau of Land Management

Jeff Johnson, Environmental Coordinator
Mark Gingrich, Minerals
Barbara Kehrberg, Lands
Mike Zielinski, Soils, Vegetation
Steve Bird, T&E, Sensitive Species
Lynn Clemons, Recreation
Peggy McGuckian, Cultural
Deloris Cates, Visual Resources
Chuck Neill, Noxious Weeds

Converse Consultants

Dennis Bryan, P.E., Geological Engineer
David Scarpato, Staff Geologist

MACTEC Engineering and Consulting, Inc.

William Reich, CF, EA Review
Jackee Picciani, Vegetation
Nancy Bish, Wildlife
Vickie Clay, Soils and Cultural Resources

Nevada Cement Company

Bo Elgby, Geologist

6.2 Persons, Groups or Agencies Consulted

Nevada Natural Heritage Program
United States Department of the Interior, Fish and Wildlife Service, Nevada Office
Tom Myers, Great Basin Mine Watch
Glenn Miller, Sierra Club
Dave Simpson, Nevada Department of Environmental Protection, Reclamation
Pershing County Water District
Humboldt River Ranch Association

Notification of the Nevada Cement Company, Echo Canyon Project was sent to the following:

FEDERAL GOVERNMENT

Katrina Smolen
U. S. Army Corps of Engineers

Jeanne Geselbracht
United States Environmental Protection Agency, Region IX

Honorable John Ensign
United States Senate

Honorable Jim Gibbons
United States House of Representatives

Honorable John Marvel
Nevada State Assemblyman

Honorable Harry Reid
Unites States Senate

Honorable Dean Rhoads
Nevada State Senator

LIBRARIES

Humboldt County Library

Pershing County Library

Ms. Alisa Huckle
Business and Government Information Center
University of Nevada Libraries

LOCAL GOVERNMENTS

Humboldt County Commissioners
Paul Miller, Chairman

Mike Baughman
Humboldt River Basin Water Authority

Humboldt River Basin Water Authority

Rusty Kiel
Manager, Lovelock Water District

Pershing County Commissioners

Bennie Hodges
Pershing County Water District

City of Winnemucca
City Council Members

Steve West
Winnemucca City Manager

NATIVE AMERICAN GROUPS

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Lovelock Paiute Colony

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MINING COMPANIES

John Mudge
Newmont Gold Company

Jeff White
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Tim Arnold
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NEWSPAPERS

Adella Harding
Elko Daily Free Press

Dave Gouger, Editor
Humboldt Sun

Troy Daulton
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NON-AFFILIATED INDIVIDUALS

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Nevada Department of Transportation

State of Nevada
Division of Water Resources

Rory Lamp
Nevada Division of Wildlife

Richard Heap
Nevada Division of Wildlife

John Gebhardt
Nevada Division of Wildlife

Jim French
Nevada Division of Wildlife

Rebecca Palmer
Nevada State Historic Preservation Office

PRIVATE GROUPS AND BUSINESSES

Audubon Society
Lahontan Chapter

Bo Elgby
Nevada Cement Company

Nick Stiren
Nevada Cement Company

Richard Harris
Harris & Thompson

Committee for the High Desert

J. S. Livermore
Cordex Exploration Company

Steve Acheampong
Desert Research Institute

Tom Myers
Great Basin Mine Watch

Georgia Morgan
Humboldt River Ranch Homeowners Assoc.

Phil Hocker
Mineral Policy Center

Jacqui Bonomo
National Wildlife Federation

Johanna Wald
Natural Resources Defense Council

Nature Conservancy
Northern Nevada Office

Nevada Cattlemen's Association

Russell Fields, President
Nevada Mining Association

Nevada Land and Resource Company

Susan Lynn
Public Resource Associates

Sierra Club
California/Nevada RCC Mining Committee

Glenn Miller
Sierra Club, Great Basin Group

Rose Strickland
Sierra Club, Toiyabe Chapter

Steve Siegel
Sierra Pacific Power Company

Jon Marvel
Western Watershed Project

C. Barcomb
Wild Horses Commission

Wild Horse Organization Assistance

Joe Mitchell

Danny & Lorie Clarke

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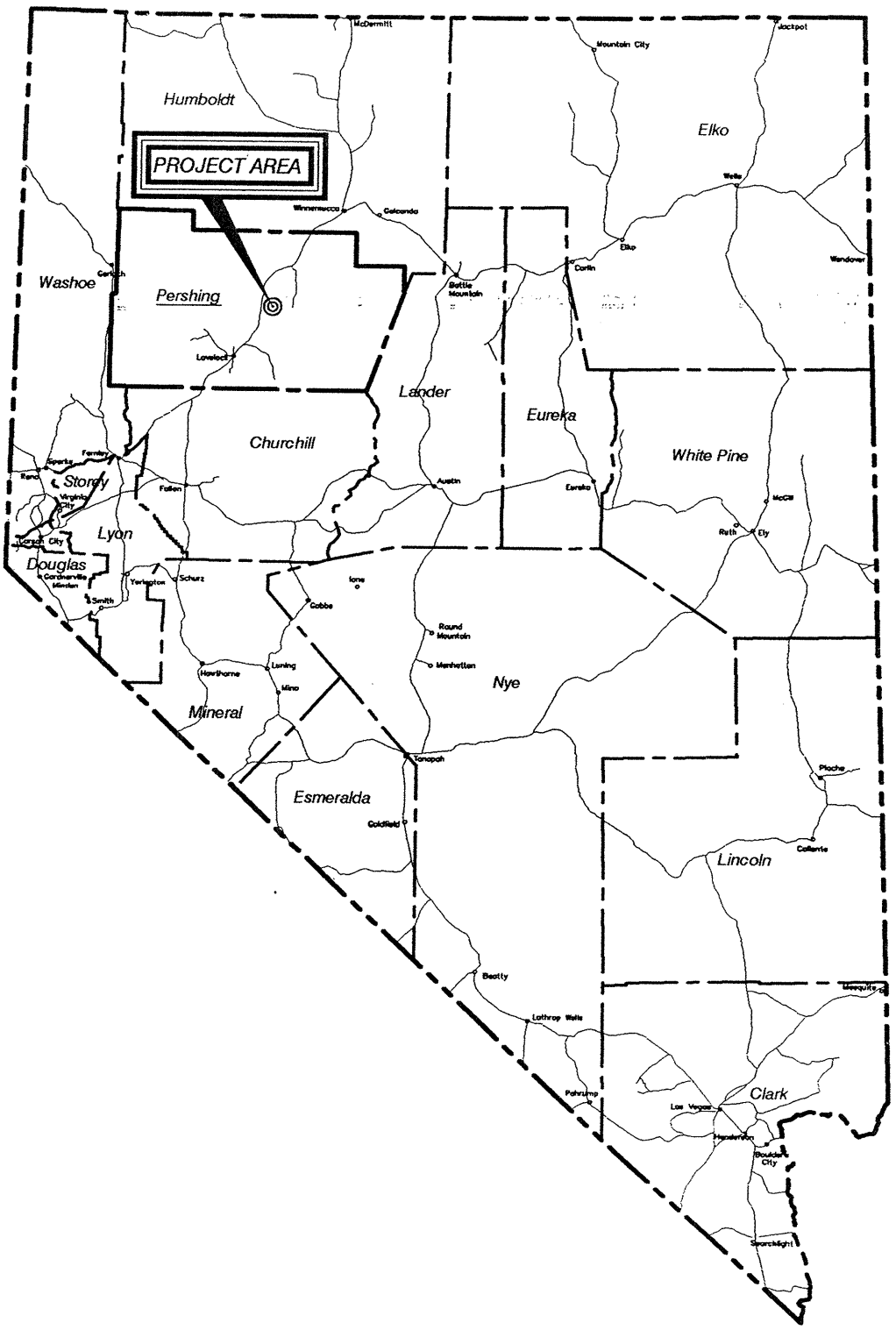
Figures



Environmental Assessment
Nevada Cement Company
Location Map

Echo Canyon Project

Pershing County, NV – T 30 N, R 33 E MDB & M

Converse Consultants

N

0 30 60 90 120

SCALE: 1" = 60 MILES

Figure 1

Appendix A

BLM RECOMMENDED SEED MIX

Echo Canyon Project

Seed Mix T. 30 N., R. 33 E., Section 8
Shadscale - Black Greasewood Seed Mix

Species	PLS lbs./Acre	Bulk lbs./Acre	PLS/sq. ft
Fourwing saltbrush	3	5	4
Shadscale	3	5	4
Indian ricegrass	1	1.25	4
Black greasewood	0.5	1	3
Totals	**7.5**	**12.25**	**15**

Seed Mix T. 30 N., R. 33 E., Section 14 and 23

Species	PLS lbs./Acre	Bulk lbs./Acre	PLS/sq. ft
Bluebunch wheatgrass	2.5	3	10
Wyoming big sage	0.1	1	7
Fourwing saltbrush	1.5	3	1
Black sagebrush	0.1	1	3
Western yarrow	0.2	0.25	15
Totals	**4.4**	**8.25**	**36**

Appendix B

NEVADA'S NOXIOUS WEEDS LIST

NEVADA'S NOXIOUS WEEDS LIST as of 8/00
(alphabetical by common name)

Common Name	Scientific Name
African Rue	*Peganum harmala*
Austrian fieldcress	*Rorippa austriaca*
Austrian peaweed	*Sphaerophysa salsula / Swainsona salsula*
Black henbane	*Hyoscyamus niger*
Camelthorn	*Alhagi camelorum*
Common crupina	*Crupina vulgaris*
Dyer's woad	*Isatis tinctoria*
Eurasian water-milfoil	*Myriophyllum spicatum*
Goat's rue	*Galega officinalis*
Hemlock: (a) Poison; and (b) Water	*Conium maculatum* *Cicuta maculata*
Horse-nettle: (a) Carolina; and (b) White	*Solanum carolinense* *Solanum elaeagnifolium*
Houndstongue	*Cynoglossum officinale*
Hydrilla	*Hydrilla verticillata*
Klamath weed	*Hypericum perforatum*
Knapweed: (a) Diffuse; (b) Russian; (c) Spotted; and (d) Squarrose	*Centaurea diffusa* *Acroptilon repens* *Centaurea maculosa* *Centaurea virgata Lam. Var. squarrose*
Leafy spurge	*Euphorbia esula*
Mayweed chamomile	*Anthemis cotula*
Mediterranean sage	*Salvia aethiopis*
Medusahead	*Taeniatherum caput-medusae*
Perennial pepperweed	*Lepidium latifolium*
Puncturevine	*Tribulus terrestris*
Purple loosestrife	*Lythrum salicaria*
Rush skeletonweed	*Chondrilla juncea*
Saltcedar (tamarisk)	*Tamarix ramosissima*
Sorghum species, perennial, Including, but not limited to: (a) Johnson grass; (b) Sorghum alum; and (c) Perennial sweet sudan	
Sulfur cinquefoil	*Potentilla recta*
Thistle: (a) Canada; (b) Musk; (c) Scotch; (d) Sow; (e) Iberian star; (f) Purple star; and (g) Yellow star:	*Cirsium arvense* *Carduus nutans* *Onopordum acanthium* *Sonchus arvensis* *Centaurea iberica* *Centaurea calcitrapa* *Centaurea solstitialis*
Toadflax, Dalmatian	*Linaria dalmatica*
Toadflax, yellow	*Linaria vulgaris*
Whitetop or hoary cress	*Cardaria draba*

Appendix C

VISUAL CONTRAST RATING WORK SHEETS

MAP SHOWING KOP LOCATIONS

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

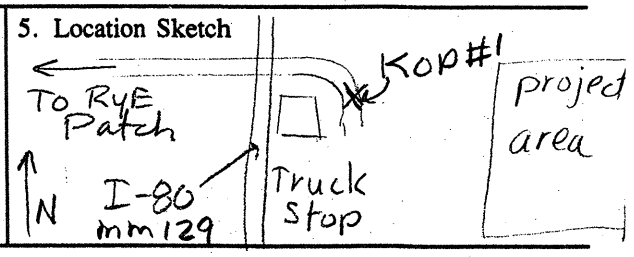
Date: September 10, 2003
District: NV-020, WFO
Resource Area:
Activity (program): 3809

SECTION A. PROJECT INFORMATION

1. Project Name: Nevada Cement
Echo Canyon Exploration Project
2. Key Observation Point: KOP #1
I-80 at mm 129
3. VRM Class: II

4. Location
Township: 30N
Range: 33E
Section: 14

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Alluvial fan, gentle slope foregrnd Moderate to steep and jagged slopes mid and background	uniform + patchy foreground some patchy + dotted areas in mid and background	linear, solid, narrow
LINE	Flat + horizontal in foreground. Diagonal, undulating midground Angular, diagonal, jagged backgrnd	Distinct line between foreground alluvial fan and mountain background.	foreground - horizontal linear elements, I-80, Roads, homes Vertical elements - fences, power pole
COLOR	Foreground - light yellow, tan, green mid and background dark gray and tan	Foreground - tans, yellows, green splashes, Background - dark green and grays	dark brown power poles gray + tan Roads light + dark dwellings
TEXTURE	Coarse, ordered	foreground - fine mid to background, medium to coarse, dotted	foreground - dwellings, scattered poles, fences, roads ordered mid to background - none

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	moderate to steep, jagged	uniform + dotted after revey	roads would be diagonal
LINE	Bold, irregular, diagonal, Angular	distinct lines in vege would be created	increase diagonal linear elements
COLOR	light brow + light gray some white + light soils	revegetation would be green, grays	roads would be lighter than surrounding
TEXTURE	directional, ordered	directional, ordered	directional, ordered

SECTION D. CONTRAST RATING ☒ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form				X				X				X
Line				X			X					X
Color			X					X				X
Texture			X					X				X

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names: Delores Cates
Date: 9/10/2003

SECTION D. (Continued)

Comments from item 2.

During construction and drilling operations The roads in The Humboldt Range would be very visible from KOP #1, along I-80, and at Humboldt River Ranches. Careful recontouring & revegetation will over time mitigate the impacts to visual resources.

Additional Mitigating Measures (See item 3)

Minimize cut and fill
utilize stockpiled topsoil

☆U.S. GOVERNMENT PRINTING OFFICE: 1985—461-988/33094

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date November 19, 2003

District NV-020, WFO

Resource Area ——

Activity (program) 3809

SECTION A. PROJECT INFORMATION

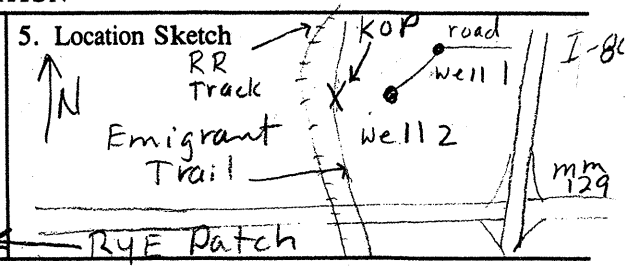
1. Project Name Nevada Cement ECHO Canyon Exploration Project

2. Key Observation Point Mill site claims KOP #2, Emigrant Trail

3. VRM Class II

4. Location
Township 30N
Range 33E
Section 8

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	foreground-flat. midground-gently sloping pediment, alluvial fan background-angular to jagged mtns.	foreground-uniform midground-uniform background-dotted	foreground-none. midground-I80, linear. Gravel piles, pyramidal Back linear expl. roads, Rhomboidal open P.
LINE	foreground-weak, midground-strong diagonal on alluvial fan, background-angular, diagonal	foreground none midground-line following I-80 background-none	foreground-none, midground-I-80 bold horizontal, power poles strong vertical. Background diagonal roads
COLOR	foreground-grays, tans, white midground-grays, tans, background-grays, tans, dull red	foreground-grays, tans midground-grays, tans, yellows background-grays, greens	foreground-none midground-gray, brown, white, light background-tan, white
TEXTURE	fore smooth mid smooth back coarse	fore-coarse mid-smooth back-dotted	foreground-none mid-ordered, coarse back-ordered coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	flat	Uniform, after reclamation and revegetation	linear road blocky well head
LINE	weak	after reclamation and revegetation - none	linear element would be created in foreground
COLOR	grays, tans, white	grays, tans, greens after revegetation	Colors may contrast
TEXTURE	Smooth	Coarse-after revegetation	well heads, may contrast with vege

SECTION D. CONTRAST RATING ☒ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form				X				X			X	
Line				X			X				X	
Color				X				X			X	
Texture				X			X				X	

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names — Date

Debra Cates — 11/19/2003

SECTION D. (Continued)

Comments from item 2.

The road and proposed wells would barely be visible from the emigrant trail unless objects protrude higher than existing vegetation. Travelers along Interstate 80 may see the disturbance, but it won't be real obvious. Careful recontouring and revegetation will over time mitigate the impacts to visual Resources

Additional Mitigating Measures (See item 3)

1) The monitoring well heads should be low profile so they are not visible from the emigrant trail.
2) Disturbance should be minimized at the drill sites
3) Fluids should not be allowed to cross the emigrant trail during drilling or testing.
4) The monitoring well heads should be painted a color that blends in with the surrounding vegetation and scenery

☆U.S. GOVERNMENT PRINTING OFFICE: 1985—461-988/33094

Appendix D

LETTERS FROM:

NEVADA NATURAL HERITAGE PROGRAM

U.S. FISH AND WILDLIFE SERVICE

Nevada Natural Heritage Program

Department of Conservation and Natural Resources
1550 East College Parkway, Suite 137 * Carson City, Nevada 89706-7921
voice: (775) 687-4245 fax: (775) 687-1288 web: www.heritage/nv.gov/

29 July 2003

David J. Scarpato
Converse Consultants
4840 Mill St, Suite 5
Reno, NV 89502

RE: Data request received 28 July 2003

Dear Mr. Scarpato:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or sensitive plant and animal taxa recorded within or near the EC Mill and Echo Canyon Lode Claims project area. We searched our database and maps for the following, a two mile radius around:

Township 30N Range 33E Sections 8, 14, and 23

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for: the Goodrich biscuitroot, *Cymopterus goodrichii*, a Nevada Bureau of Land Management (BLM) Sensitive Species; the windloving buckwheat, *Eriogonum anemophilum*, a Nevada BLM Sensitive Species; the Owyhee prickly phlox, *Leptodactylon glabrum*, a Nevada BLM Sensitive Species; and the long-legged myotis, *Myotis volans*, a Nevada BLM Sensitive Species. We do not have complete data on various raptors that may also occur in the area; for more information contact Ralph Phenix, Nevada Division of Wildlife at (775) 688-1565. Note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including taxa not tracked by this office.

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

Eric S. Miskow
Biologist III/Data Manager

Sensitive Taxa Recorded Near the EC Mill and Echo Canyon Lode Claims Project Areas

Compiled by the Nevada Natural Heritage Program for Converse Consultants

29 July 2003

Scientific name	Common name	Usfws	Blm	Usfs	State	Srank	Townrange	Section	Lat	Long	Prec	Last observed
Invertebrates												
Limenitis archippus lahontani	Nevada viceroy	xC2	N			S1S2	030N033E	18	40.469722	118.306667	S	1966-08-25

U. S. Fish and Wildlife Service (Usfws) Categories for Listing under the Endangered Species Act:

- x C2 Former Category 2 Candidate, now species of concern

Bureau of Land Management (Blm) Species Classification:

- N Nevada Special Status Species - designated Sensitive by State Office

Precision (Prec) of Mapped Occurrence:

Precision, or radius of uncertainty around latitude/longitude coordinates:

- S Seconds: within a three-second radius
- M Minutes: within a one-minute radius, approximately 2 km or 1.5 miles
- G General: within about 8 km or 5 miles, or to map quadrangle or place name

Nevada Natural Heritage Program Global (**Grank**) and State (**Srank**) Ranks for Threats and/or Vulnerability:

- G Global rank indicator, based on worldwide distribution at the species level
- T Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
- S State rank indicator, based on distribution within Nevada at the lowest taxonomic level
  - 1 Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
  - 2 Imperiled due to rarity or other demonstrable factors
  - 3 Vulnerable to decline because rare and local throughout its range, or with very restricted range
  - 4 Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
  - 5 Demonstrably secure, widespread, and abundant
    - A Accidental within Nevada
    - B Breeding status within Nevada (excludes resident taxa)
    - H Historical; could be rediscovered
    - N Non-breeding status within Nevada (excludes resident taxa)
    - Q Taxonomic status uncertain
    - U Unrankable
    - Z Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
    - ? Assigned rank uncertain

UNITED STATES DEPARTMENT of the INTERIOR

FISH AND WILDLIFE SERVICE
Nevada Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502-7147
(775) 861-6300 ~ Fax: (775) 861-6301

August 6, 2003
File Nos. 1-5-03-SP-252
1-5-03-SP-258

Mr. David Scarpato
Converse Consultants
4840 Mill Street, Suite 5
Reno, Nevada 89502

Dear Mr. Scarpato:

Subject: Species List Request for Proposed Mining Exploration Activities, Carson City and Pershing Counties, Nevada

In response to your letter received on July 30, 2003, and a telephone conversation on August 1, 2003, we have enclosed two lists of threatened species and species of concern that may occur in the proposed project areas (Enclosure A). The project includes three different sites; one just north of Carson City in Carson City County and two near Rye Patch Reservoir in Pershing County. We have included two lists, one for each of the counties. These lists fulfill the requirement of the Fish and Wildlife Service (Service) to provide information on listed species pursuant to section 7(c) of the Endangered Species Act of 1973, as amended, for projects that are authorized, funded, or carried out by a Federal agency.

For your consideration, Enclosure A contains a list of other species of concern to the Service which may occur in the project areas. The Service has used information from State and Federal agencies and private sources to assess the conservation needs and status of these species. Further biological research and field study are needed to resolve their conservation status. By considering these species and exploring management alternatives early in the planning process, it may be possible to provide long-term conservation benefits for these species and avoid future conflicts that could otherwise develop. We recommend that you contact the Nevada Natural Heritage Program [1550 East College Parkway, Suite 137, Carson City, Nevada 89710, (775) 687-4245] and the appropriate regional office of the Nevada Department of Wildlife, as well as other local, State, andFederal agencies for distribution data and information on the conservation needs of these and other species of concern.

Obscure scorpion plant (*Phacelia inconspicua*), which may occur in the vicinity of the Pershing County sites, is listed as critically endangered by the State of Nevada under Nevada Revised Statutes (NRS) 527.260-.300. For this species, no member of its kind may be removed or destroyed at any time by any means except under special permit issued by the State Forester (NRS 527.270). Requests for permits should be directed to the State Forester, Nevada Division of Forestry at 2525 South Carson Street, Carson City, Nevada 89701, (775) 684-2500. It should be noted that many of the plant species on the State's critically endangered list are not federally listed by the Service because of the protection afforded to them under the State's regulations. Consideration of this species during project planning and early coordination with the State is important to assist with species conservation efforts and to prevent the need for Federal listing actions in the future.

We recommend land clearing (or other surface disturbance) associated with any projects be timed to avoid potential destruction of active bird nests or young of birds that breed in the area. Such destruction may be in violation of the Migratory Bird Treaty Act (15U.S.C. 701-718h). Under the Migratory Bird Treaty Act, active nests (nests with eggs or young) of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If active nests are located, or if other evidence of nesting (mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Please reference File Nos. 1-5-03-SP-252 and 1-5-03-SP-258 in future correspondence concerning these species lists. If you have any questions or require additional information, please contact me or Jody Fraser at (775) 861-6300.

Sincerely,

for Robert D. Williams
Field Supervisor

Enclosure

ENCLOSURE A2

Threatened Species and Species of Concern
That May Occur in the Areas of Proposed Mining Exploration,
Pershing County, Nevada

File No. 1-5-03-SP-258; August 6, 2003

Threatened Species

Bird	
Bald eagle	*Haliaeetus leucocephalus*

Species of Concern

Mammals	
Pygmy rabbit	*Brachylagus idahoensis*
Townsend's big-eared bat	*Corynorhinus townsendii*
Spotted bat	*Euderma maculatum*
Small-footed myotis	*Myotis ciliolabrum*
Long-eared myotis	*Myotis evotis*
Fringed myotis	*Myotis thysanodes*
Long-legged myotis	*Myotis volans*
Birds	
Western burrowing owl	*Athene cunicularia hypugaea*
Ferruginous hawk	*Buteo regalis*
Sage grouse	*Centrocercus urophasianus*
Black tern	*Chlidonias niger*
Least bittern	*Ixobrychus exilis hesperis*
White-faced ibis	*Plegadis chihi*
Invertebrate	
Nevada viceroy	*Limenitis archippus lahontani*
Plants	
Goodrich biscuitroot	*Cymopterus goodrichii*
Windloving buckwheat	*Eriogonum anemophilum*
Owyhee prickly phlox	*Leptodactylon glabrum*
Nevada oryctes	*Oryctes nevadensis*
Obscure scorpion plant	*Phacelia inconspicua*

Appendix E

GEOCHEMISTRY REPORTS

SERGENT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS
SOIL & FOUNDATION ENGINEERING • ENGINEERING GEOLOGY • HYDROGEOLOGY
MATERIALS ENGINEERING • MATERIALS TESTING • ENVIRONMENTAL SERVICES

July 6, 1992

Nevada Cement Company
P. O. Box 840
Fernley, Nevada 89408

SHB Job No. E91-8046

Attention: Mr. Steve Rowley
Plant Manager

Re: Chemistry Results
Echo Canyon Claim Group

Dear Steve:

The results of chemistry conducted on samples taken at the Echo Canyon Claim Group are attached. These samples were taken by the Contractor (CGS, Inc.) when they were locating the claims in late January of this year. They sampled either nearby outcrops or float rock near claim monuments they were placing. They did not sample in areas of alluvium. The locations of the samples are numbered by claim number and by monument location on that claim (for example ESC 14 means the sample was taken at the east side - center monument on Echo Canyon #14).

All chemistry was conducted in the NCC laboratory at Fernley. The accompanying table lists the chemistry of the samples and highlights those results which are generally considered questionable for the manufacture of cement. It would appear that the small number of samples with questionable chemistry, however, could be blended with other higher quality material to make a suitable plant feed.

The chemical results of this survey along with previous results reported in a letter dated January 28, 1992 indicate the limestone is likely to be suitable for cement manufacture. It should be emphasized, however, that these samples were of competent rock and therefore do not necessarily represent an average chemistry of what is present in the subsurface. Our geological reconnaissance indicated there may be thin seams of shales or other possible contaminants present in the section. Continuous sampling obtained by drilling would be necessary to more adequately evaluate the deposit.

REPLY TO: 737 E. GLENDALE AVE., SPARKS, NEVADA 89431

PHOENIX	TUCSON	ALBUQUERQUE	SALT LAKE CITY	EL PASO	RENO/SPARKS	DENVER/LAKEWOOD
(602) 272-6848	(602) 792-2779	(505) 884-0950	(801) 266-0720	(915) 542-0046	(702) 331-2375	(303) 763-8432
FAX 272-7239	FAX 888-0014	FAX 884-1694	FAX 266-0727	FAX 542-0078	FAX 331-4153	FAX 763-8012

If there are any questions, please do not hesitate to contact us at any time.

Respectfully submitted,

Sergent, Hauskins & Beckwith Engineers

By _____
Dennis P. Bryan
Geological Engineer

DPB:ng

Copies: Addressee (2)

TABLE 1

CHEMICAL RESULTS
ECHO CANYON LIMESTONE
(Sampled by CGS, Inc. January, 1992)

SAMPLE LOCATION/CLAIM #	$CaCO_3$	SiO_2	MgO	Na_2O	K_2O
ESC 7	84.4	10.24	1.06	0.05	0.01
NEC 9	94.7	3.80	0.33	0.07	0.03
ESC 9	91.1	5.54	0.37	0.07	0.20
NEC 10	99.5	0.35	0.37	0.03	--
ESC 10	95.5	2.48	0.37	0.06	0.06
DM 10	92.3	4.79	0.68	0.10	0.07
NEC 11	97.4	1.34	0.34	0.06	0.04
ESC 11	93.9	4.72	0.33	0.06	0.08
NEC 12	99.8	0.26	0.20	0.05	--
ESC 12	87.2	6.30	0.69	0.08	0.24
NEC 13	95.8	2.98	0.31	0.05	0.01
ESC 13	95.5	2.17	0.49	0.08	0.09
NEC 14	85.7	10.03	0.31	0.06	0.03
ESC 14	89.9	5.12	0.48	0.10	0.22
DM 14	99.8	0.35	0.33	0.04	--
NEC 15	95.3	3.19	0.27	0.09	0.06
ESC 15	87.6	7.94	0.27	0.09	0.02
NEC 16	64.3*	28.62*	0.30	0.06	0.12
ESC 16	83.9	3.99	4.83*	0.08	0.25
DM 16	71.7*	21.21	0.19	0.13	0.11
NEC 17	95.6	2.50	0.36	0.06	0.09
ESC 17	99.0	0.34	0.67	0.03	--
ESC 18	96.0	2.46	1.31	0.05	--
DM 18	63.4*	26.52*	2.39	0.06	0.06
NEC 22	89.6	4.07	1.92	0.07	0.09
SEC 22	78.1	13.69	0.45	0.19	0.32
ESC 23	95.2	2.33	1.06	0.06	--
DM 23	83.8	4.73	5.29*	0.06	0.05
NEC 24	92.2	3.42	0.81	0.09	0.10
SEC 24	86.8	7.64	1.91	0.07	--
NEC 25	96.3	2.28	0.37	0.07	0.01
ESC 25	89.7	5.57	0.70	0.10	0.14
DM 25	88.5	6.86	0.91	0.09	0.06
NEC 26	70.1*	20.59*	1.78	0.06	0.07
ESC 26	89.1	6.85	0.96	0.07	0.02

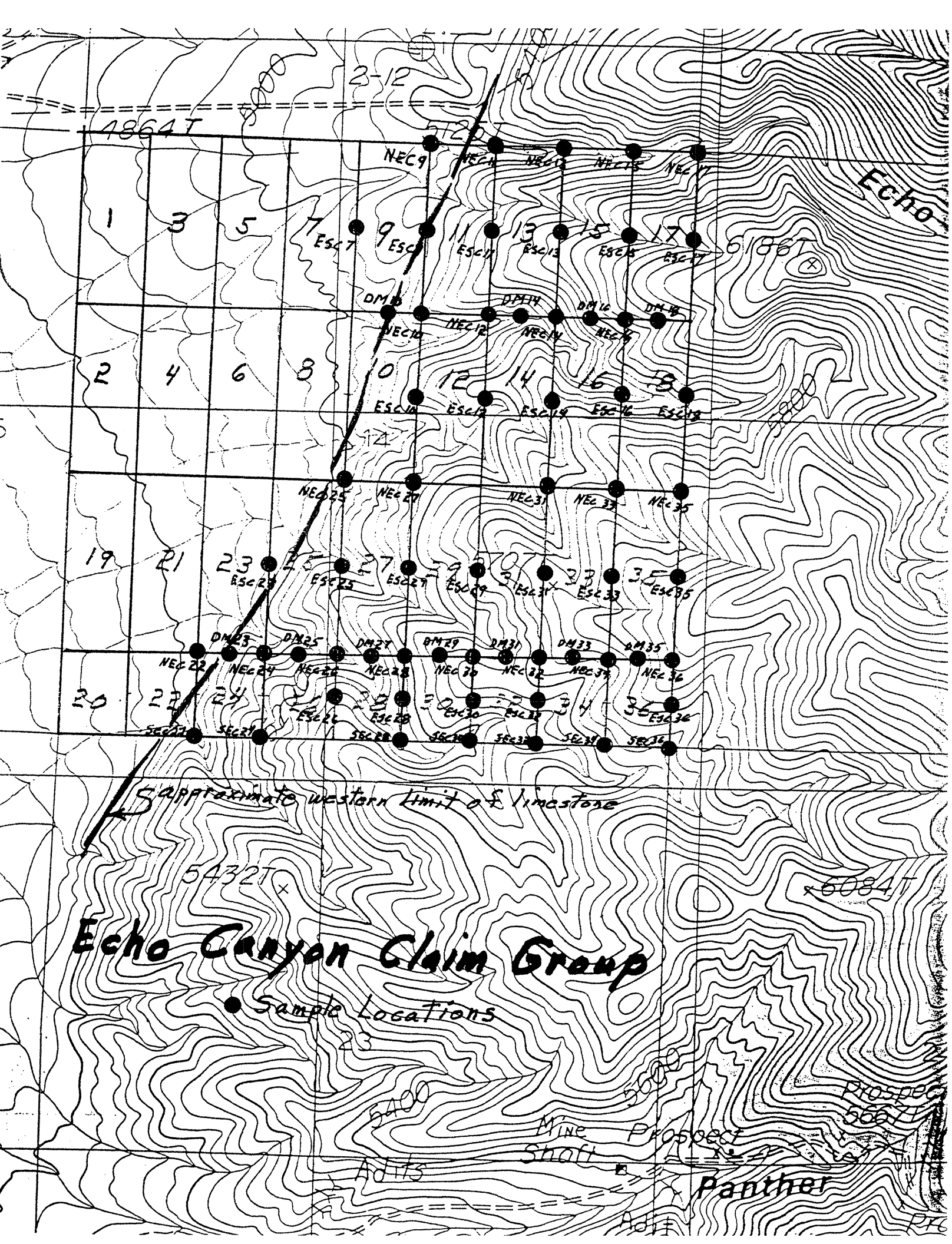
TABLE 1 (Cont'd)

CHEMICAL RESULTS
ECHO CANYON LIMESTONE
(Sampled by CGS, Inc. January, 1992)

SAMPLE LOCATION/CLAIM #	$CaCO_3$	SiO_2	MgO	Na_2O	K_2O
NEC 27	87.2	7.84	0.43	0.08	0.12
ESC 27	94.3	3.09	0.70	0.07	0.04
DM 27	92.9	4.03	0.76	0.06	0.04
NEC 28	93.1	0.90	3.45*	0.04	--
ESC 28	99.7	0.32	0.65	0.04	--
SEC 28	98.5	1.10	0.54	0.05	--
ESC 29	98.5	0.18	1.53	0.03	--
DM 29	85.0	6.71	0.60	0.16	0.43
NEC 30	91.3	0.14	4.90*	0.04	--
ESC 30	95.1	2.84	0.65	0.03	0.02
SEC 30	96.8	1.32	0.92	0.04	--
NEC 31	97.9	1.01	0.80	0.05	--
ESC 31	98.8	0.74	0.27	0.03	--
DM 31	94.8	1.58	1.41	0.06	0.05
NEC 32	89.7	7.12	0.78	0.07	--
ESC 32	91.6	4.77	0.36	0.04	0.04
SEC 32	90.3	7.00	0.41	0.03	--
NEC 33	97.6	0.68	1.07	0.04	--
ESC 33	91.3	5.70	0.30	0.06	0.01
DM 33	89.6	7.35	0.51	0.04	--
NEC 34	87.0	9.34	0.61	0.05	0.04
SEC 34	72.9*	7.01	10.48*	0.04	--
NEC 35	96.1	2.31	0.46	0.06	--
ESC 35	88.3	7.97	0.38	0.08	0.02
DM 35	89.9	6.57	0.60	0.05	0.18
NEC 36	79.9	13.28	1.80	0.05	0.08
ESC 36	87.7	7.76	0.51	0.06	0.22
SEC 36	92.6	4.90	1.09	0.04	--

Notes: Locations of samples on accompanying map are as follows:
- ESC - east side - center monument of claim
- NEC - northeast corner monument of claim
- SEC - southeast corner monument of claim
- DM - discovery monument of claim
- 7, etc - claim number

* Highlights those results which may be questionable for cement manufacture
- $CaCO_3$ - less than 74 percent $CaCO_3$
- SiO_2 - greater than 20 percent SiO_2
- MgO - greater than 2.5 percent MgO


Echo
4864T
NEC9
NEC11
NEC13
NEC15
NEC17
1
3
5
7
ESC7
9
ESC9
11
ESC11
13
ESC13
15
ESC15
17
ESC17
6186T
DM10
DM12
DM14
DM16
DM18
NEC10
NEC12
NEC14
NEC16
2
4
6
8
0
12
14
16
18
ESC10
ESC12
ESC14
ESC16
ESC18
NEC25
NEC27
NEC31
NEC33
NEC35
19
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ESC23
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ESC26
ESC28
ESC30
ESC32
ESC36
SEC21
SEC23
SEC25
SEC27
SEC29
SEC31
SEC33
SEC34
SEC36
Approximate western limit of Limestone
5432T
6084T
Echo Canyon Claim Group
Sample Locations
5400
5600
Prospect
5667T
Mine
Prospect
Shaft
Adits
Panther
Adits

DB

FILE COPY

SERGENT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS

SOIL & FOUNDATION ENGINEERING • ENGINEERING GEOLOGY • HYDROGEOLOGY
MATERIALS ENGINEERING • MATERIALS TESTING • ENVIRONMENTAL SERVICES

January 28, 1992

Nevada Cement Company
P. O. Box 895
Fernley, Nevada 89408

SHB Job No. E91-8046

Attention: Mr. Steve Rowley

Re: Echo Canyon Limestone

Dear Steve:

On January 21, 1992, Keith Papke and I sampled and further delineated the boundaries of the limestone in Section 14 of the Echo Canyon Limestone deposit. Section 14 is a part of an extensive limestone resource area that we had previously described in our report of November 15, 1991. Section 14 is Federal land administered by the BLM and is open to location of Mining Claims.

We walked much of the limestone within the section and it appears to be of good quality with minor beds rich in chert and dolomite. The limestone ranges from massive cliff-forming beds to occasional thin bedded friable units and has a total thickness of over 600 feet. The unit is generally striking northeast-southwest and dips toward the northwest.

Samples were taken in the three main drainages which cut across the limestone and submitted to Shahid for analysis. The results of the chemistry is presented in the accompanying table and the sample locations are shown on the accompanying map. The results indicate the material has a high potential for use in cement.

If you have any questions concerning this letter, please contact the undersigned.

Respectfully submitted,
Sergent, Hauskins & Beckwith Engineers

By _____
Dennis P. Bryan
Geological Engineer

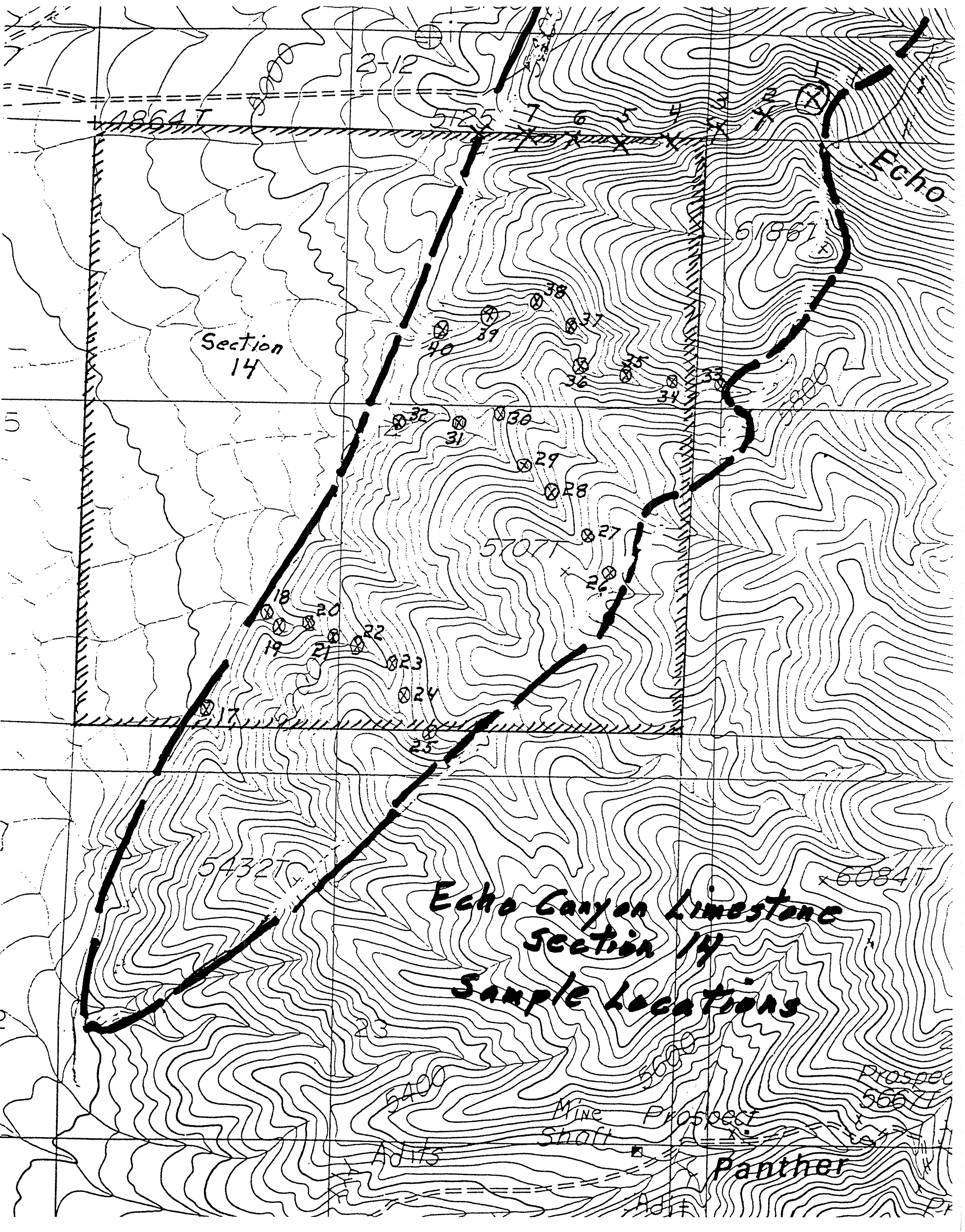
DPB:ng

Copies: Addressee (1)

SAMPLE TEST RESULTS
ECHO CANYON LIMESTONE

SAMPLE	$CaCO_3$	K_20	Na_20	Mg0	$Si0_2$
Ech - 1	89.2	0.08	0.06	6.66	0.54
- 2	98.4	0.05	0.04	1.12	0.72
- 3	100.3	0.07	0.03	0.43	0.15
- 4	96.6	0.04	0.04	0.35	2.64
- 5	96.9	0.01	0.04	0.75	1.64
- 6	95.5	0.06	0.04	0.85	2.68
- 7	92.8	0.03	0.04	1.91	2.99
- 17	97.1	0.08	--	0.61	1.94
- 18	88.8	0.13	0.09	1.39	5.37
- 19	86.1	0.17	0.11	1.52	6.78
- 20	89.1	0.11	0.12	0.98	5.59
- 21	92.4	--	0.05	0.84	4.42
- 22	87.5	--	0.05	0.47	8.49
- 23	88.8	0.04	0.06	0.94	6.94
- 24	98.8	--	0.05	0.98	0.28
- 25	99.1	--	0.05	0.39	0.57
- 26	91.2	0.03	0.05	0.26	6.33
- 27	99.7	--	0.04	0.36	0.35
- 28	96.5	--	0.03	2.34	--
- 29	93.0	0.04	0.04	1.38	3.51
- 30	92.1	0.10	0.08	0.31	4.78
- 31	93.0	0.03	0.07	0.78	3.66
- 32	87.7	0.15	0.10	1.46	5.81
- 33	96.5	--	0.04	0.47	2.58
- 34	91.4	0.11	0.09	0.41	4.48
- 35	93.4	0.12	0.06	0.58	3.81
- 36	96.6	--	0.05	1.34	1.37
- 37	97.9	--	0.03	0.85	0.98
- 38	90.6	0.10	0.06	0.93	5.79
- 39	41.7	0.05	0.08	0.18	50.11
- 40	88.3	0.22	0.09	1.01	8.46

Note: Samples Ech-1 through Ech-7 were taken during initial exploration and were previously reported in our report of November 15, 1991. Samples Ech-17 through Ech-40 were taken on January 21, 1992.


Echo Canyon Limestone
Section 14
Sample Locations
Section 14
Echo
Panther
Mine Shaft
Prospect
Adits
Adit
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5707T
5432T
6084T
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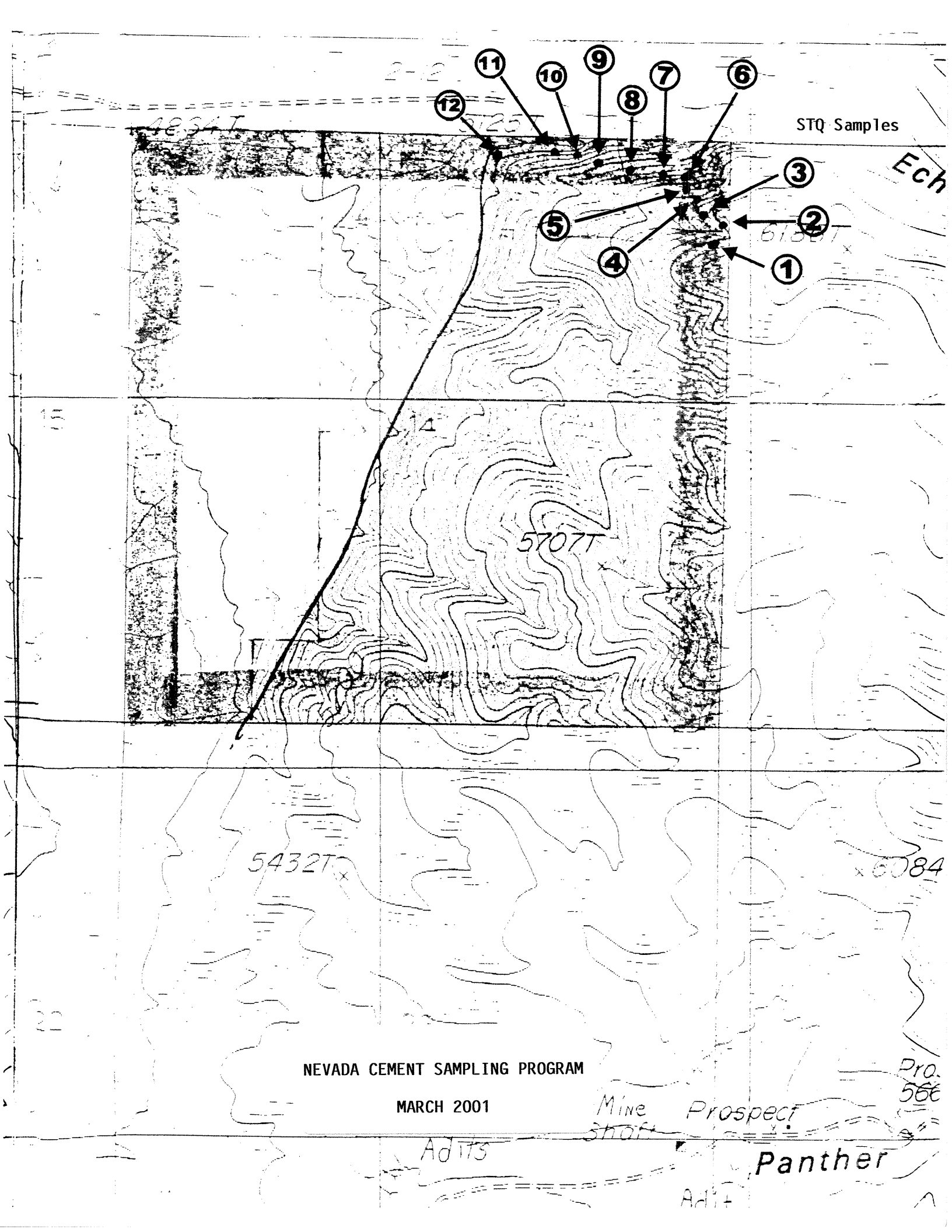

NEVADA CEMENT SAMPLING PROGRAM

MARCH 2001

LIMESTONE

DATE	NAME	SiO2	Al2O3	Fe2O3	CaO	MgO	SO3	LOSS *	Na2O	K2O	Eqv.	TiO2	Cl	TOTAL	CaCO3	MgCO3
3/28/01	STQNQ1	3.07	1.57	1.29	53.53	0.58	0.14	38.89	0.20	0.21	0.34	0.12	0.01	99.61	95.54	1.21
3/28/01	STQNQ2	0.50	0.00	0.60	58.14	0.18	0.09	39.91	0.16	0.00	0.16	0.01	0.01	99.60	103.77	0.38
3/28/01	STQNQ3	0.50	0.00	0.60	58.01	0.23	0.07	39.97	0.15	0.04	0.18	0.02	0.01	99.60	103.53	0.48
3/28/01	STQNQ4	0.50	0.07	0.84	55.87	0.17	0.09	41.78	0.15	0.08	0.20	0.05	0.01	99.61	99.72	0.36
3/28/01	STQNQ5	4.71	0.55	0.80	52.53	0.41	0.10	40.15	0.17	0.13	0.26	0.04	0.01	99.60	93.75	0.86
3/28/01	STQNQ6	0.50	0.00	0.63	58.85	0.09	0.07	39.27	0.16	0.00	0.16	0.01	0.01	99.59	105.03	0.19
3/28/01	STQNQ7	0.50	0.24	0.83	56.23	0.25	0.11	41.20	0.17	0.04	0.20	0.02	0.01	99.60	100.36	0.52
3/28/01	STQNQ8	0.50	0.00	0.58	58.93	0.10	0.08	39.21	0.15	0.04	0.18	0.01	0.01	99.61	105.18	0.21
3/28/01	STQNQ9	0.50	0.00	0.69	56.63	0.43	0.07	41.11	0.15	0.00	0.15	0.01	0.01	99.60	101.07	0.90
3/28/01	STQNQ10	0.50	0.31	0.62	57.99	0.43	0.10	39.36	0.17	0.07	0.22	0.03	0.01	99.59	103.50	0.90
3/28/01	STQNQ11	0.50	0.00	0.56	58.22	0.30	0.07	39.78	0.16	0.00	0.16	0.01	0.01	99.61	103.91	0.63
3/28/01	STQNQ12	0.50	0.00	0.56	56.32	2.46	0.06	39.53	0.16	0.00	0.16	0.01	0.01	99.61	100.52	5.15

IGNITED BASIS**

DATE	NAME	SiO2	Al2O3	Fe2O3	CaO	MgO	SO3	Na2O	K2O	Eqv.	TiO2	Cl	TOTAL
3/28/01	STQNQ1	5.02	2.57	2.11	87.60	0.95	0.23	0.33	0.34	0.56	0.20	0.01	99.36
3/28/01	STQNQ2	0.83	0.00	1.00	96.75	0.30	0.15	0.27	0.00	0.27	0.02	0.01	99.33
3/28/01	STQNQ3	0.83	0.00	1.00	96.64	0.38	0.12	0.25	0.07	0.30	0.03	0.02	99.33
3/28/01	STQNQ4	0.86	0.12	1.44	95.96	0.29	0.15	0.26	0.14	0.35	0.09	0.01	99.33
3/28/01	STQNQ5	7.87	0.92	1.34	87.77	0.69	0.17	0.28	0.22	0.43	0.07	0.02	99.33
3/28/01	STQNQ6	0.82	0.00	1.04	96.90	0.15	0.12	0.26	0.00	0.26	0.02	0.02	99.33
3/28/01	STQNQ7	0.85	0.41	1.41	95.63	0.43	0.19	0.29	0.07	0.34	0.03	0.01	99.32
3/28/01	STQNQ8	0.82	0.00	0.95	96.94	0.16	0.13	0.25	0.07	0.29	0.02	0.01	99.36
3/28/01	STQNQ9	0.85	0.00	1.17	96.16	0.73	0.12	0.25	0.00	0.25	0.02	0.02	99.32
3/28/01	STQNQ10	0.82	0.51	1.02	95.63	0.71	0.16	0.28	0.12	0.36	0.05	0.02	99.33
3/28/01	STQNQ11	0.83	0.00	0.93	96.68	0.50	0.12	0.27	0.00	0.27	0.02	0.02	99.35
3/28/01	STQNQ12	0.83	0.00	0.93	93.14	4.07	0.10	0.26	0.00	0.26	0.02	0.02	99.36

PROJECTED

C3S
298
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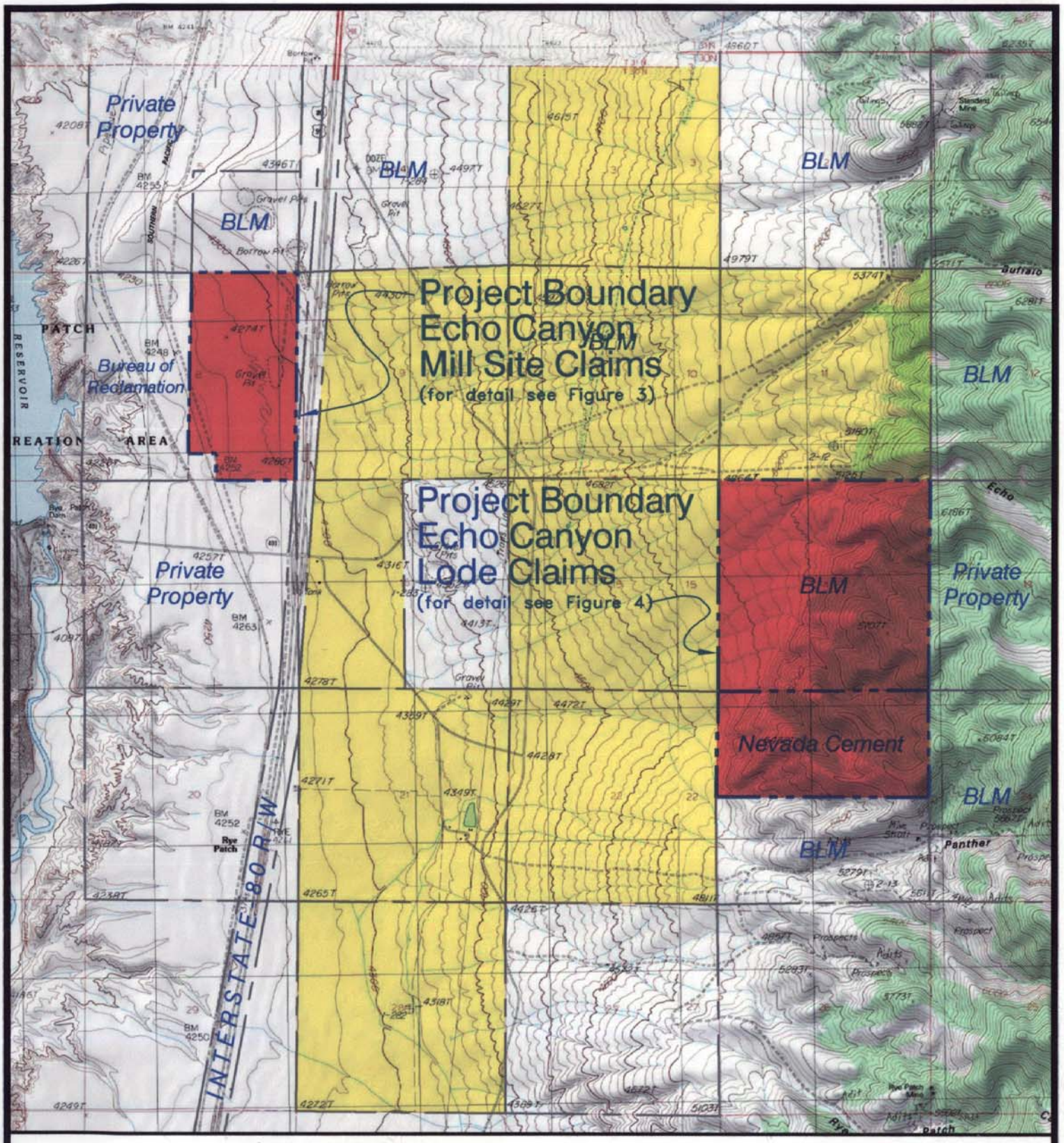
372

*LOSS - Loss on ignition (% by weight CO_2 loss when fired)
**IGNITED BASIS - Adjusted weight percentages after subtracting loss on ignition



Environmental Assessment
Nevada Cement Company

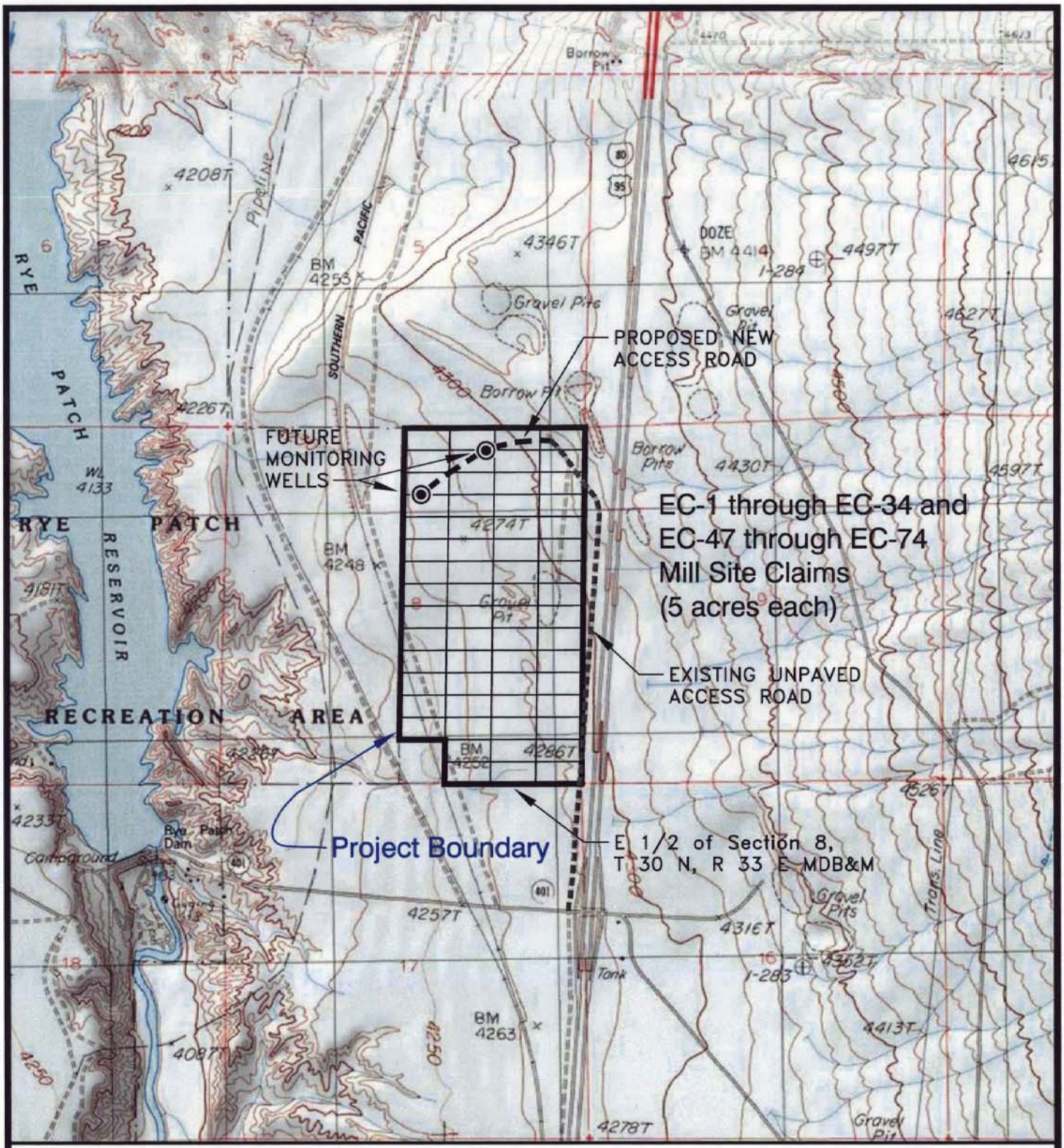
Project Vicinity Map and Property Ownership

T 30 N, R 33 E MDB & M

Converse Consultants

REF: USGS 7.5 MINUTE TOPO – RYE PATCH DAM & CONGRESS CANYON QUADRANGLES

Figure 2



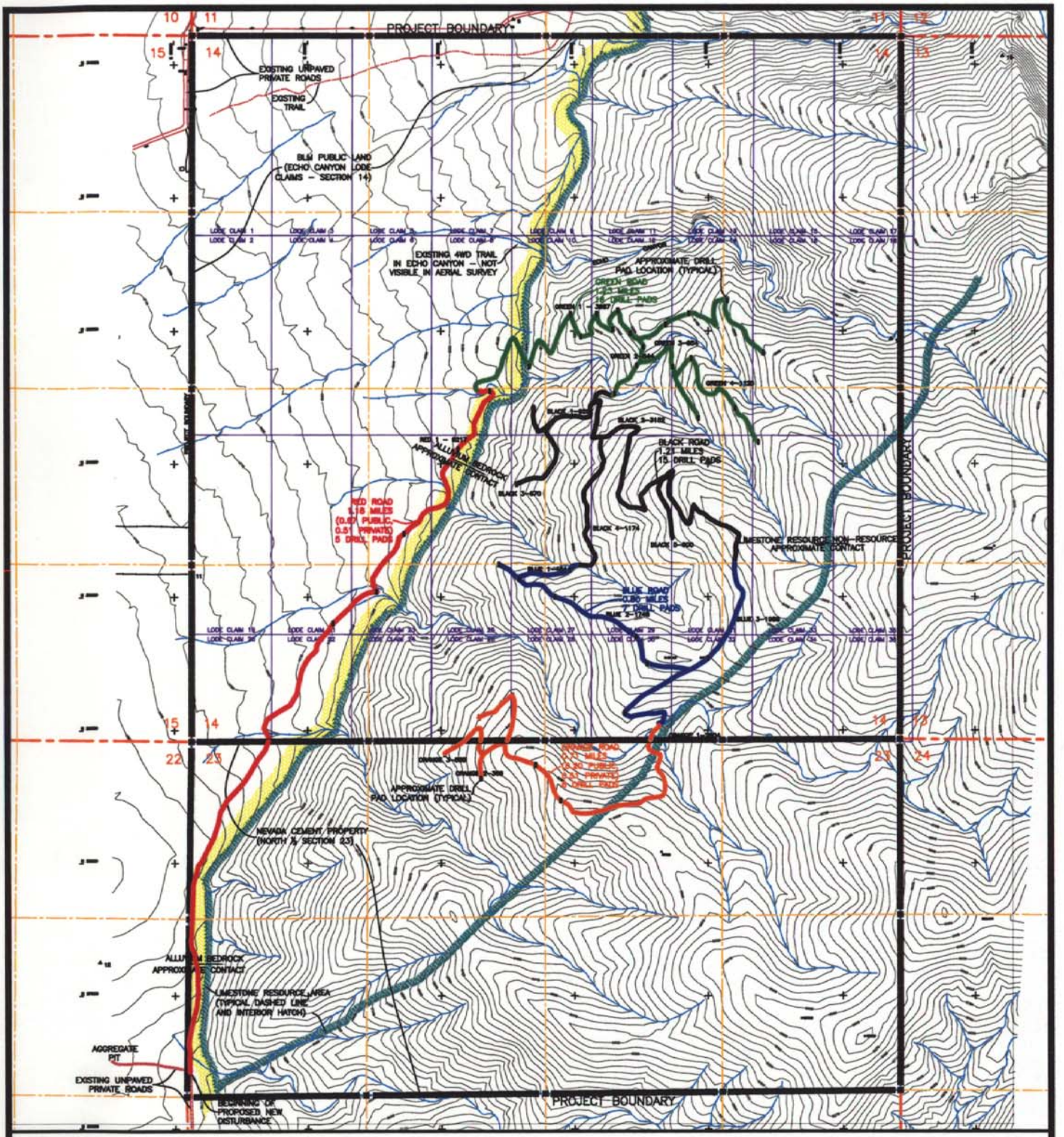
Environmental Assessment
Nevada Cement Company

Proposed Action on Mill Site Claims

Converse Consultants

REF: USGS 7.5 MINUTE TOPO – RYE PATCH DAM QUADRANGLE

Figure 3



Environmental Assessment
Nevada Cement Company

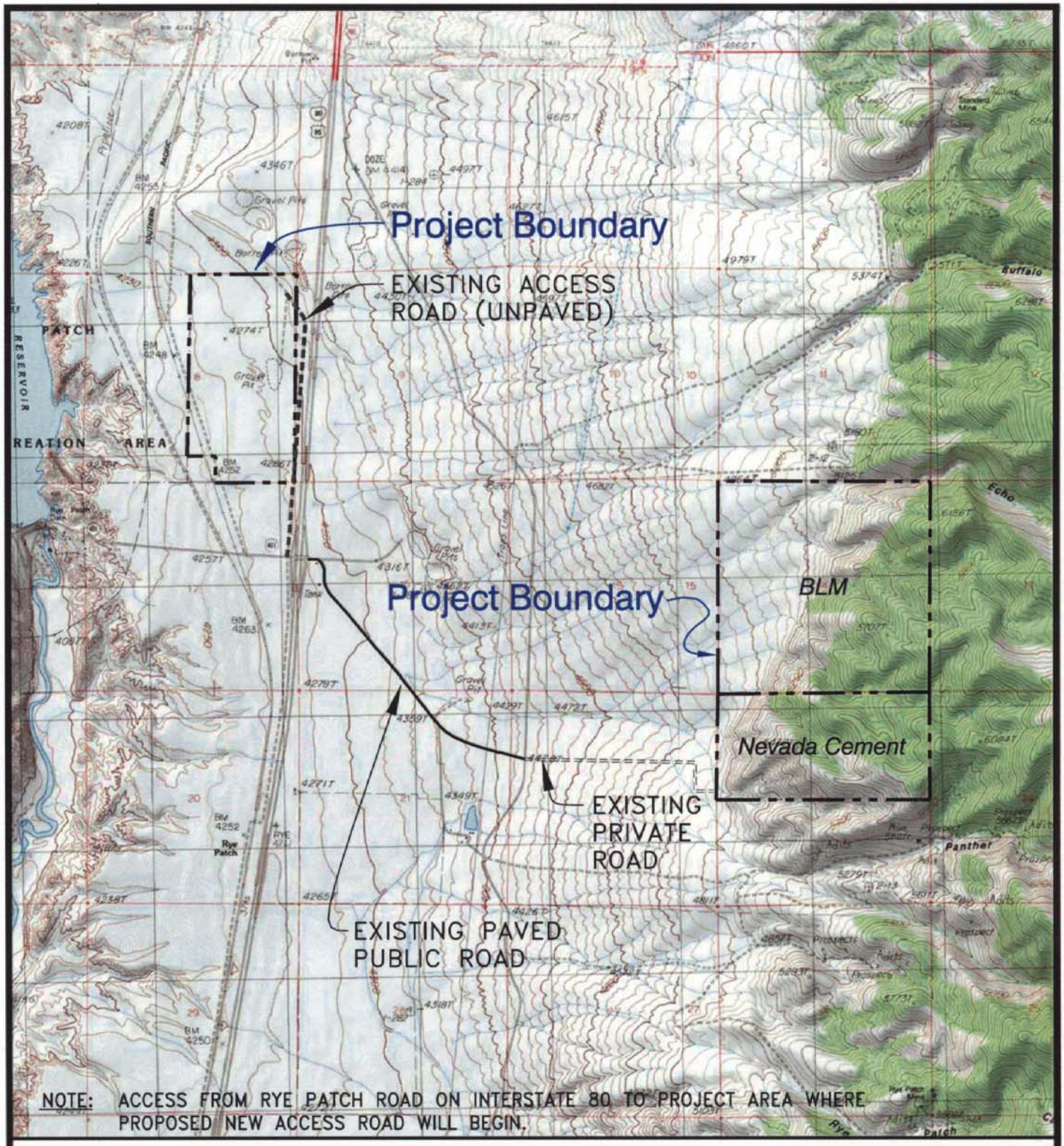
Proposed Action on Lode Claims

T 30 N, R 33 E MDB & M

Converse Consultants

REF: USGS 7.5 MINUTE TOPO – CONGRESS CANYON QUADRANGLE

Figure 4



Environmental Assessment
Nevada Cement Company

Project Vicinity Map Showing Access to Proposed Project

T 30 N, R 33 E MDB & M

Converse Consultants

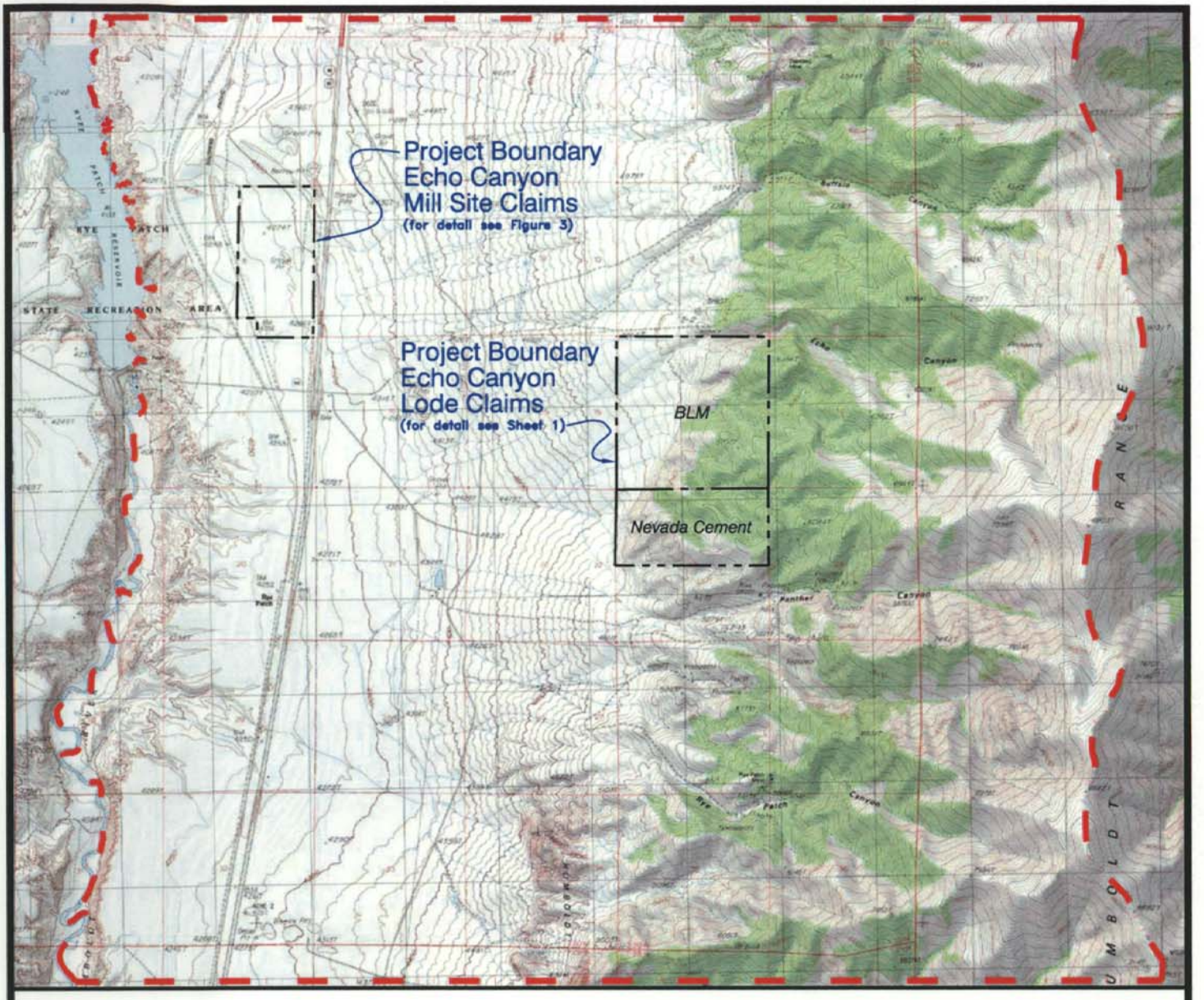
REF: USGS 7.5 MINUTE TOPO – RYE PATCH DAM & CONGRESS CANYON QUADRANGLES

N

0 1,650' 3,300' 4,950' 6,600'

SCALE IN FEET 1" = 3,300'

Figure 5



Boundary of Cumulative Study Area

Environmental Assessment
Nevada Cement Company

Cumulative Study Area

T 30 N, R 33 E MDB & M

Converse Consultants

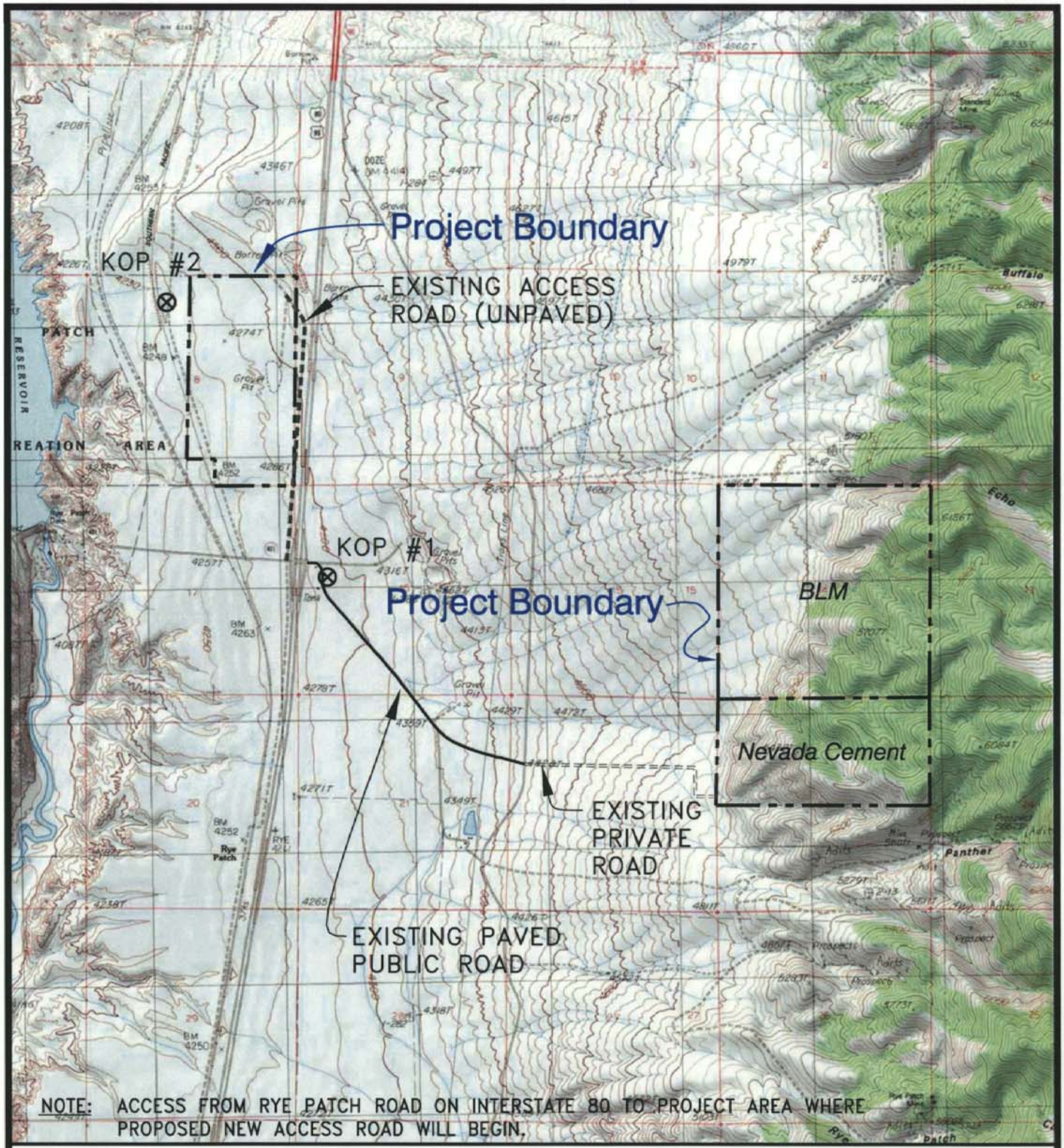
N

0 2,640' 5,280' 7,920' 10,560

SCALE IN FEET 1" = 1 mile

REF: USGS 7.5 MINUTE TOPO – RYE PATCH DAM & CONGRESS CANYON QUADRANGLES

Figure 6



Environmental Assessment
Nevada Cement Company

Key Observation Point (KOP) Locations

T 30 N, R 33 E MDB & M

Converse Consultants

N

0 1,650' 3,300' 4,950' 6,600'

SCALE IN FEET 1" = 3,300'

REF: USGS 7.5 MINUTE TOPO – RYE PATCH DAM & CONGRESS CANYON QUADRANGLES

Figure 7